THE IRON AGE

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Reading Matter Contents.....page 50
Alphabetical Index to Advertisers " 161
Classified List of Advertisers.... " 153
Advertising and Subscription Rates " 160

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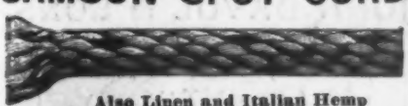

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THE IRON AGE

THURSDAY, SEPTEMBER 8, 1904.

The New Hartford Automatic Screw and Forming Machines.

The Hartford Machine Screw Company, Hartford, Conn., has made a number of important improvements to its screw and taper forming machines which greatly increase their work producing capacity, while retaining the simplicity of mechanical design which characterizes the earlier forms. The machine shown in Fig. 1, having a turret placed horizontally, and revolving in bearings at each end, is the latest design. This style has been found to possess many advantages over the monitor turret type for small work where large production is required, as, its moving parts being lighter, it can be run at a high rate of speed. They are also more sensitive, and hence less likely to break the tools. This machine has three new attachments which especially adapt it to side operations—a screw slotting attachment, a side drilling attachment and a revolving spindle on the turret. The arrangement is such that each attachment can be put in use with but little loss of time. The machines of the horizontal turret type are made in three sizes, the No. 000, in Fig. 1, being the smallest and having a maximum chuck capacity of ¼ inch. The other two sizes are No. 00, taking up to ⅜ inch, and No. 0, taking up to 9-16 inch. The monitor turret screw machine shown in Fig. 2 continues the range, style K having a maximum capacity of ¾ inch, while the two larger sizes, L and M, have capacities of 1⅜ and 2 inches, respectively. These machines have several of the improvements found on the new horizontal turret type. The special monitor turret machine shown in Fig. 3 has a new locking device for solidly clamping the turret while the tool is operating. This machine is made in two sizes, No. 2, the one illustrated, having a chuck capacity of 1⅜ inches, and No. 4 a maximum capacity of 2⅜ inches. The company's automatic forming machine, shown in Fig. 4, the only machine of the type on the market, has been improved mechanically in a number of ways, making it more efficient than before. The No. 2 machine shown has a maximum chuck capacity of ½ inch. A larger size, No. 3, is also built, which has a capacity of 1 inch. The above machines comprise a most interesting group, not only to the mechanic, but to the manufacturer, and are deserving of detailed description; but the present article will attempt only an account of the new features.

The new features of the main spindle head are common to all of the new machines. The spindle has hardened and ground conical bearings and runs in special bronze metal bushings. The tight and loose pulleys on these spindles are bushed with bronze, are self oiling and are equipped with a belt shifting device that works instantaneously, and for high speeds is superior to friction clutches. The new cross slides, of which there are two, are also improved; one at the back carries the cutting off tool and the one at the front the forming tool. They may be operated independently or simultaneously from the cam disk on the shaft directly beneath them. Fig. 5 shows how the movement of each slide is effected by a lever, A, with segment gear cut at its end engaging in rack B on the under side of the slide. The lever A is rocked by a longer lever arm carrying a follower at its end. The rack B is adjustable by means of the screw D and is clamped by the screw C. Wear on the slide is taken up by the taper wedge F by tightening screw G. All of this mechanism is completely covered, so that no chips can enter it.

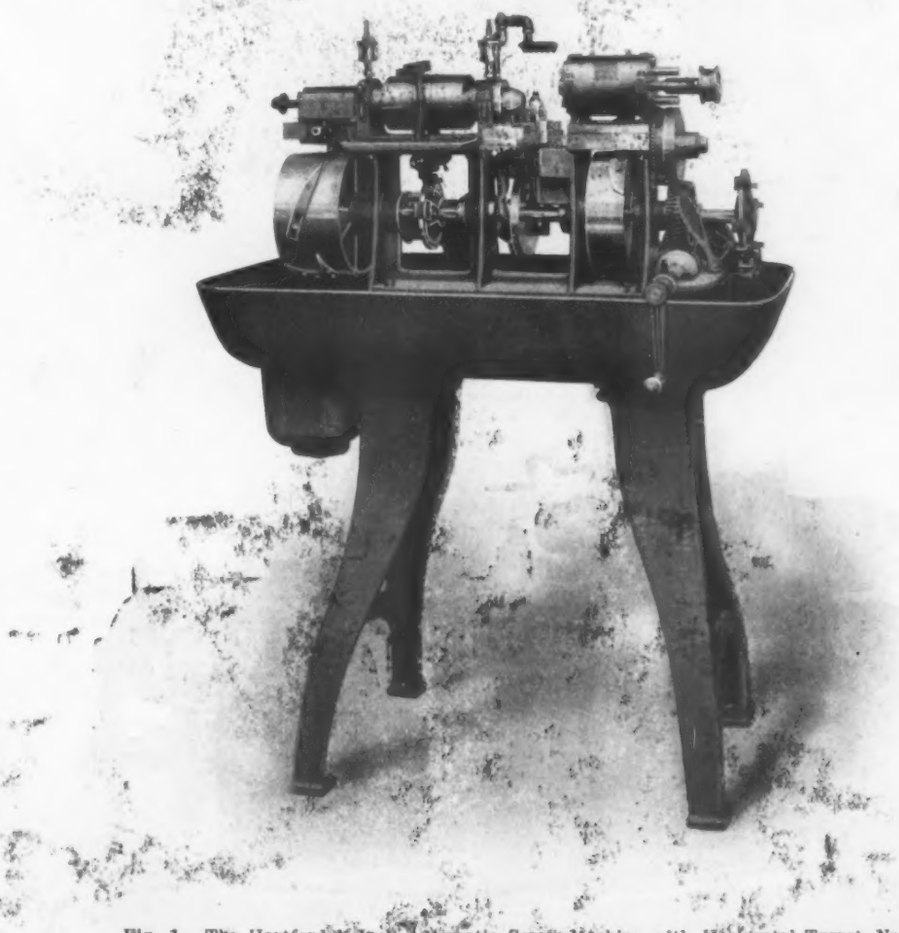


Fig. 1.—The Hartford ½-Inch Automatic Screw Machine with Horizontal Turret No. 000.

The horizontal turrets carry four tool spindles, B, B, B and B, Fig. 6, for holding the box tools, threading dies and other cutting tools. These spindles are successively placed in operative position by cams, the relations of which may be altered to increase or decrease the length of time that each spindle is in position. When the spindle is indexed in line with the head spindle it is advanced longitudinally by a slide directly under the turret which carries a projection, C, engaging with a dog, D, on each spindle. A coiled spring returns the spindle as the slide recedes. The revolving spindle attachment for the turret is shown in Fig. 7. This is mounted on a central stud in the rear of the turret and carries a long pinion, A, with the pulley B to drive it. One of the turret spindles is made to revolve in hardened steel bushings and is geared to the driving pinion through gear C. For high

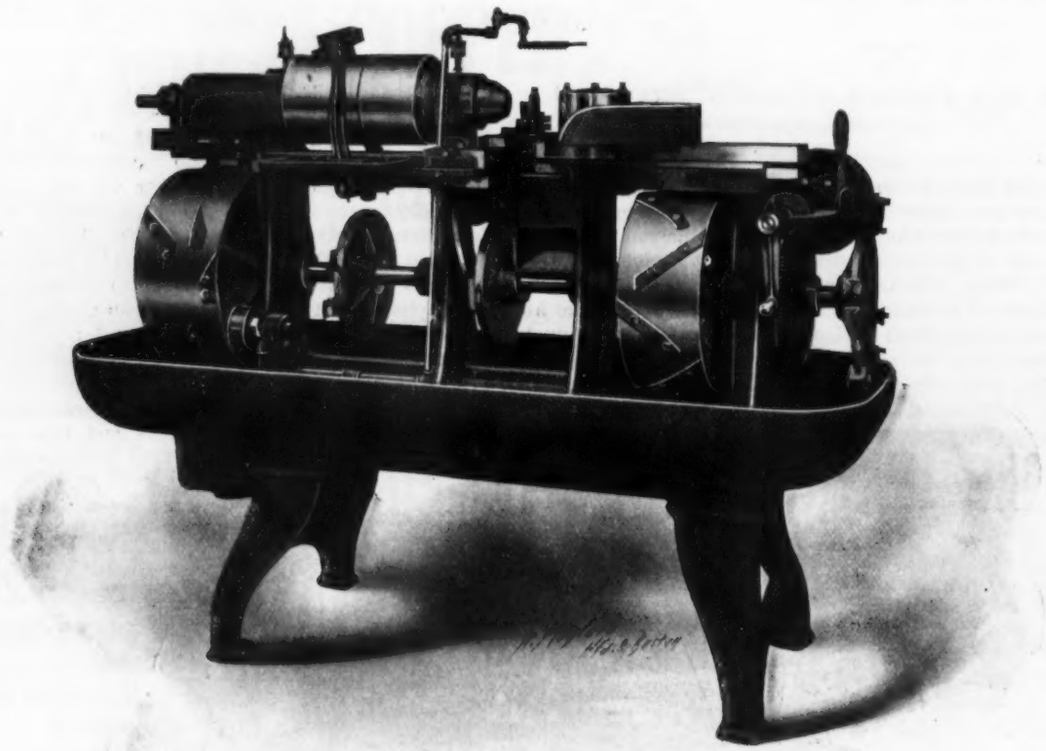


Fig. 2.—The Hartford ¾-Inch Monitor Turret Screw Machine K.

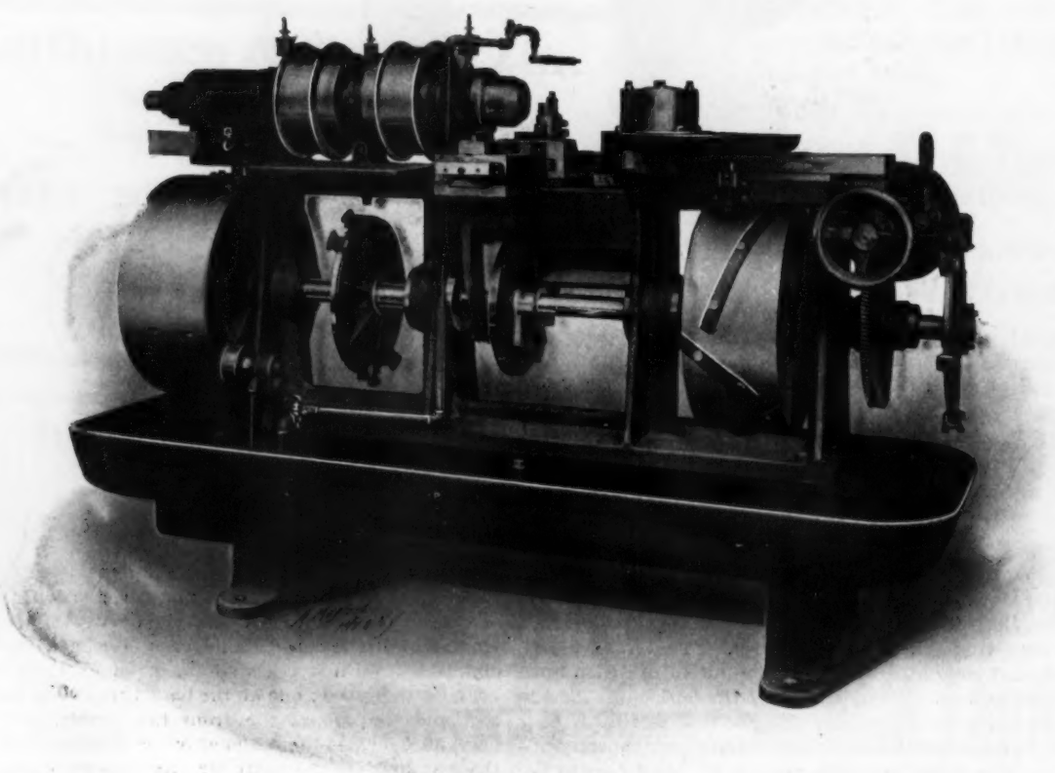


Fig. 3.—The 1⅝-Inch Special Automatic Screw Machine No. 2.

speed drilling this is driven with an open belt in the opposite direction from the main spindle of the machine. On the small high speed machines it is often desirable to reduce the cutting speed of the threading die without reducing the main spindle speed, which is regulated to suit the other tools. This is accomplished by driving the attachment with a cross belt so that it runs in the same direction as the main spindle at a slower rate of speed, thus cutting down the speed of the die. When it is desired to use the spindle without revolving, the belt is removed from the pulley and the cupped washer D is reversed, thus clamping the pinion and preventing the loose spindle from turning.

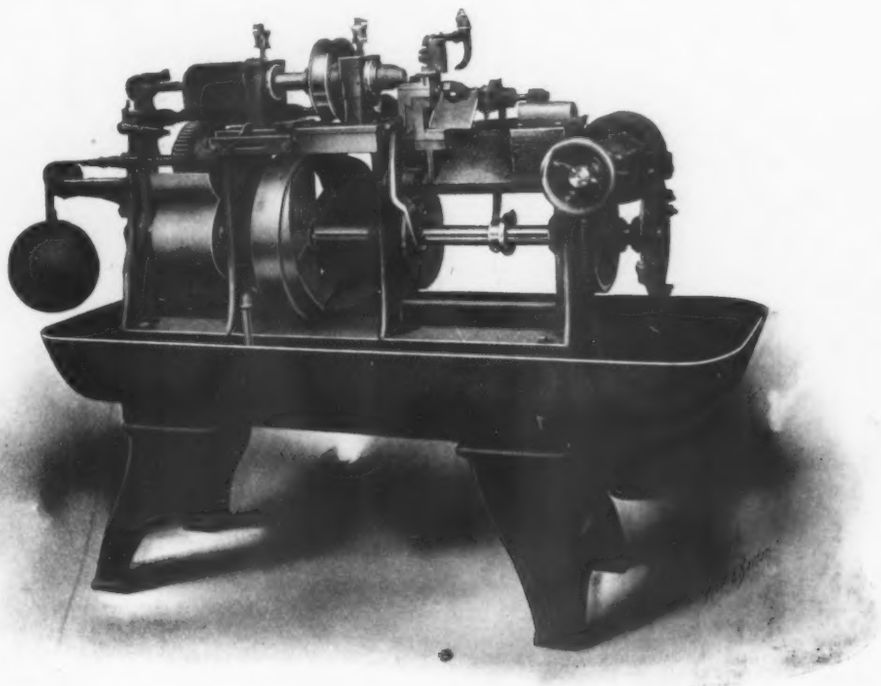


Fig. 4.—The Hartford ½-Inch Automatic Forming Machine No. 2.

The feeding mechanism, shown in Fig. 8, and operated from the main shaft, is designed to give two speeds to the cam shaft; one for feeding the tools while cutting, and the other, a fast speed, for shifting the parts of the machine from one operation to the next. The bracket A, carries the shaft B, at the center of which is a worm, C, meshing with a worm gear on the main cam shaft. At the rear end of shaft B is the driving pulley D, which is loose on the shaft, and drives the latter through a train of sun and planet gears, E and F. In this mechanism the gears are mounted on both sides of the pulley, with the pinion shaft G running through the pulley. This brings the strain of the belt between the gears, insuring equal wear, and is a departure from the usual practice, in which the gears are all on one side of the pulley. The stationary gear of this set is fast on the ratchet H, upon the hub of which is mounted a clutch sleeve, J. The latter is reciprocated upon the ratchet to engage the clutch plate K, which is secured to the pulley, to give the fastest motion. This clutch is operated through the bell lever L by cams mounted on a disk on the end of the main cam shaft of the machine. A novel feature in this device is the provision of two sets of gears, M and O, and N and P. In the figure M and O are in action, which is the arrangement used when cutting iron or steel. For brass work N and P are placed in action by reversing the gears P and O in the manner indicated in the detail.

The screw head slotting attachment for the horizontal turret machine is mounted upon the front cap of the head stock, which is planed and drilled to receive it. This attachment is shown in Fig. 9. The piece to be slotted is received when cut from the rod by a holder in one of the turret spindles and is carried by the revolution of the turret up to the saw, where it is slotted at the same time that another operation is being performed by the diagonally opposite spindle. It is then ejected with the return movement of the holder by the dog B, which is hinged in such a manner that it will not interfere with the holder when the latter is in its lower position. The weight of the dog B causes it to fall into position for ejecting the next screw. The screw is advanced to the saw when the holder spindle is in the upper position by a yoke at the rear end of the turret connecting it to the lower, or opposite, spindle. The slotting saw is carried on a vertical spindle driven by bevel gears and a belt from the countershaft. The shield protects the saw.

The side drilling attachment is shown in Fig. 10 and is supported by a bracket mounted on the rear cross slide. The drill spindle is driven by a round belt from the countershaft. One of the turret spindles carries holder A, similar to the one used in the slotting attachment. This holder receives the piece of work after being

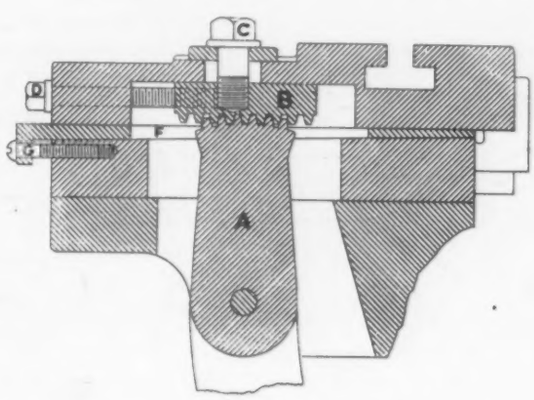


Fig. 5.—Detail of the Cross Slide Mechanism.

cut off, and when the holder has been indexed to the rear side of the turret the cross slide advances and drills the hole. The cam B ejects the drilled piece as the spindle moves to its lowest position in line with the main spindle.

The new features of the monitor turret screw machines are the main spindle, the cross slides and the fast and slow feed motions, which are essentially the same as those already described for the horizontal turret type. The same applies to the special automatic screw machine, shown in Fig. 3, with the addition of the locking device

for solidly clamping the turret while the tools are operating, thus producing very accurate work. This device is shown in Fig. 11. The ring A is gibbed around the turret with the clamping ring B lying between A and the flange of the turret C. Between the clamping ring and the gib ring are located hardened steel taper wedges, D and D, shown in the detail section in the figure. By a circular movement of the clamping ring these wedges force the clamping ring down on the turret flanges, securing it solidly to the base. The ring is operated by the cross slide E on the carriage of the turret, which carries

The automatic forming machine, shown in Fig. 4, is designed to produce taper pins, taper tang screws for firearms and many irregularly shaped articles. It has the same fast and slow feed movements as the screw machines. The spindle head is mounted in ways so as to slide longitudinally by means of a large cam, and is returned by a weight. A detail of the working part is shown in Fig. 12. The stock feeds forward through the bush A and adjustable back rest B against the pivoted tool C. This tool is mounted in one arm of the oscillating holder D, while another arm, E, carries a vertically

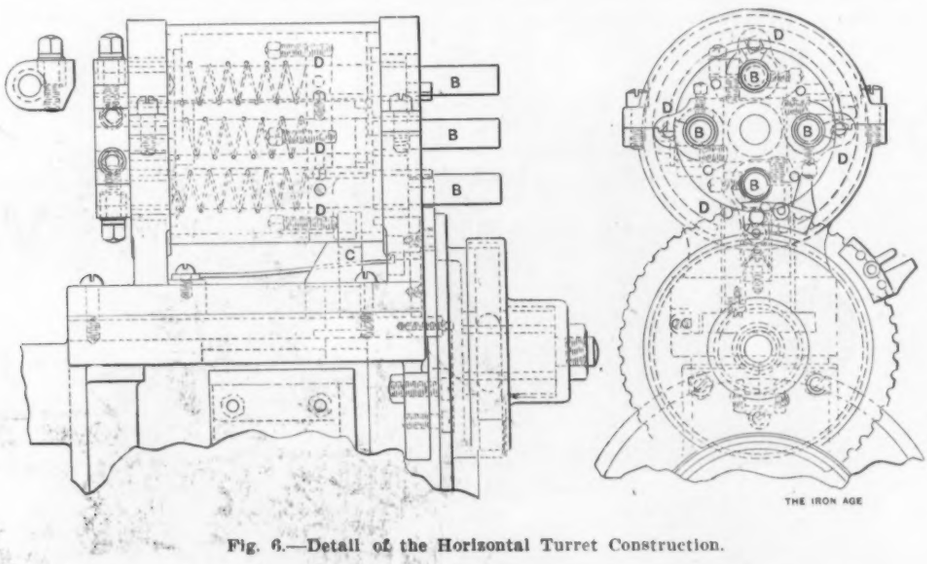


Fig. 6.—Detail of the Horizontal Turret Construction.

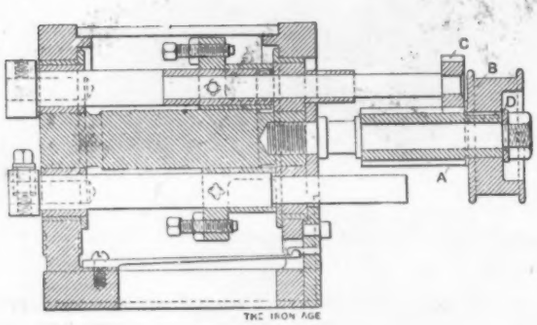


Fig. 7.—The Revolving Spindle Attachment.

adjustable pin, F, which bears on the former, G. The former is pivotally mounted on the slide H and is adjustable for different tapers by the screw I. Slide H is moved forward with the head stock, causing the pin F to slide down the incline of the former G, allowing the tool C to recede to form the taper. After the piece has been turned the pin F drops into the recess K, causing the turning tool to drop away from the finished piece before it is cut off. The latter operation is accomplished in the usual manner by a tool mounted on the cross slide.

Another new device which is of some interest is the slotting attachment which this company has brought out for use on its small automatic screw machines having reciprocating spindles. This is shown in Figs. 13, 14 and

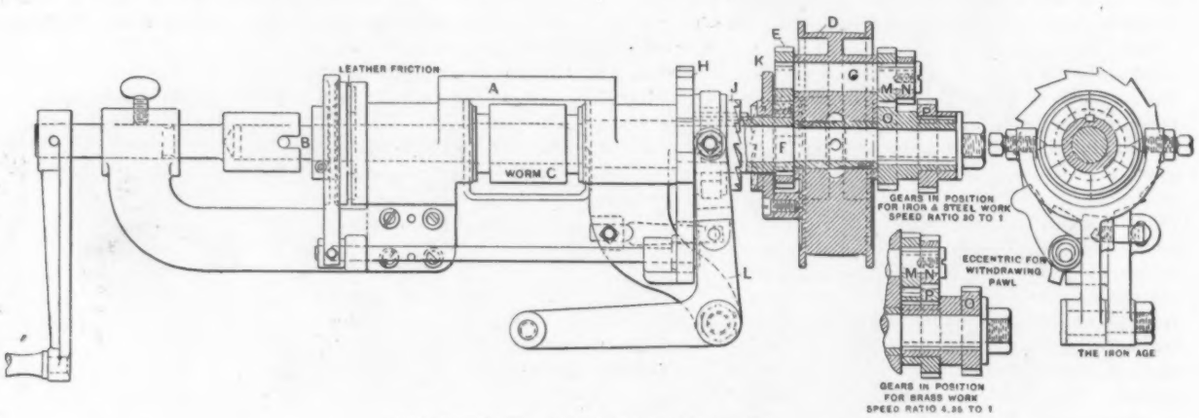


Fig. 8.—Detail of the Feeding Mechanism.

a pin, F, working in a fork projecting from the clamping ring. The slide is actuated by the double faced cam H mounted on the side of the bed. When the turret starts forward roller J on the slide E rides up on the face K of the cam H, thus revolving the clamping ring and locking the turret to the base. With the backward movement of the turret slide roller J rides up on face L of cam H, releasing the turret. This is accomplished just before the turret starts to revolve to bring another tool into position, and when the turret comes to rest it is again clamped before the tool begins its work upon the stock.

15. The attachment is mounted on the bracket at the rear of the machine and the saw is driven by a round belt from the countershaft. The curved arm A receives the screw after it is cut, by means of clamp B. The screw is then carried up to the saw, which is held on the revolving spindle D, where it is slotted. It is then ejected into funnel C, which deposits it in a pan having a perforated bottom, thus separating the finished screws from the chips or turnings. Clamp B is arranged so that when it comes down to grasp the screw it is held apart by the cam sufficiently to save the screw from being marked while it is still revolving, but without allowing it to drop

out. As soon as the arm starts up the screw is clamped solidly and remains so until after the slotting operation. The clamp B contains a split bushing, with one-half

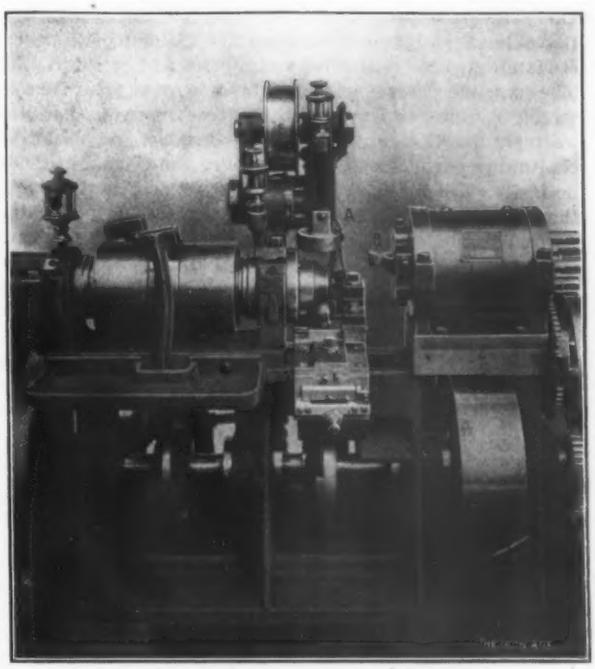


Fig. 9.—The Screw Head Slotting Attachment for the Horizontal Turret Machines.

in each jaw, and is held closed by a spring. When in its lower position picking up a screw an adjustable cam mounted on the bed under the main spindle slightly re-

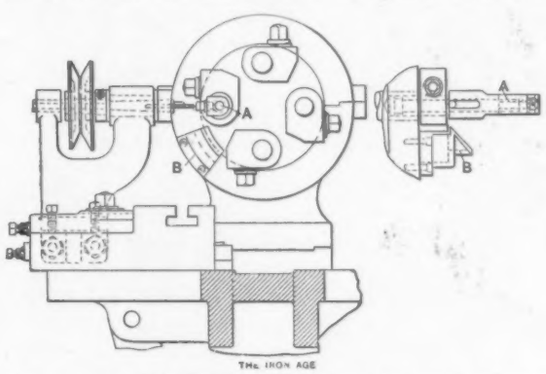


Fig. 10.—The Side Drilling Attachment for the Horizontal Turret Machines.

leases the jaws. After the slotting as the arm moves past the saw it comes in contact with the cam E, which again opens the jaws and releases the screw. An ejector pin carried in the clamp pushes the screw out so that it falls into the funnel C. The movement of the arm is effected by segment gears and levers in connection with cams on the under part of the machine.

The Worcester Pressed Steel Company.

The Worcester Pressed Steel Company has been organized under Massachusetts laws to take over the business of the Worcester Ferrule & Mfg. Company, Worcester, Mass. The new company has a capital stock of $50,000. Milton P. Higgins, president of the Norton Emery Wheel Company, the Norton Grinding Company and the Plunger Elevator Company, is president

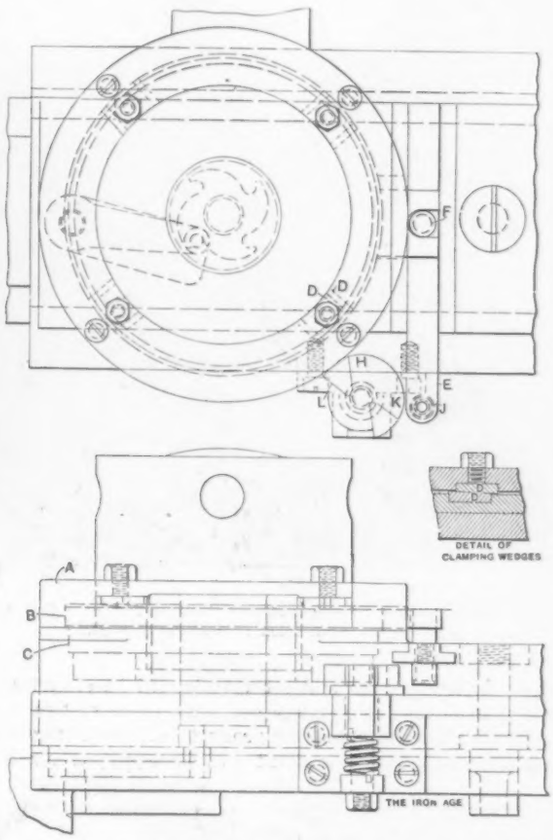


Fig. 11.—The Turret Clamping Device on the Special Automatic Screw Machine.

of the new corporation. George I. Alden, treasurer of the companies of which Mr. Higgins is president, will be prominently identified with the new enterprise, and is a director. A third director is Floyd C. Furlow, New York, of the Otis Elevator Company. John W. Higgins, who has been superintendent and secretary of the Plunger Elevator Company, will be manager of the business. New shops will be built at Barbers Crossing, Worcester, next spring. The Worcester Ferrule & Mfg. Company was established 20 years ago, and was conducted by Edmund Converse until his death. It has done a large business in pressed steel specialties. The new company will enlarge the business. M. P. Higgins has recently returned from Europe, where he investigated processes employed abroad, and while there secured options on a line of

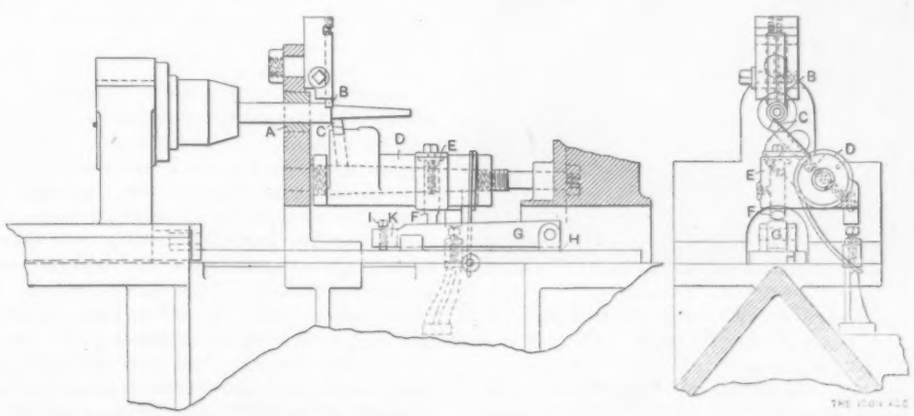


Fig. 12.—Detail of the Tool Carriage of the Hartford Automatic Forming Machine.

patented goods which the Worcester Pressed Steel Company will manufacture. It will be necessary to install a number of new presses for the manufacture of these specialties. The new shops will be modern in every respect. Provision is made for a high pressure hydraulic

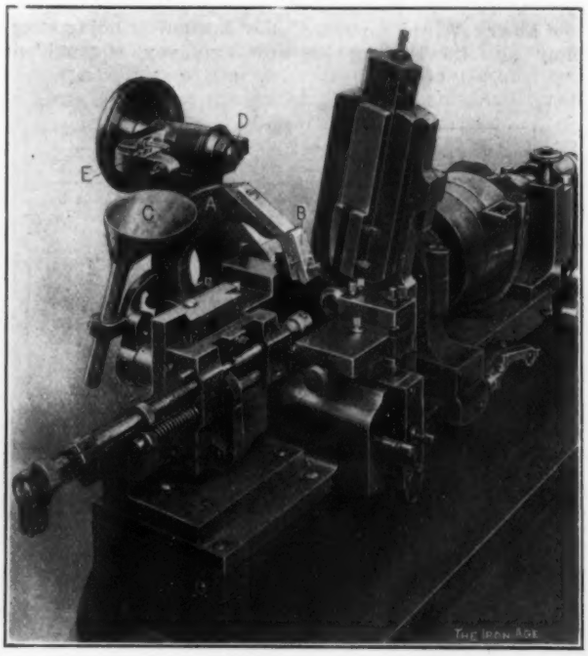


Fig. 13.—Slotting Attachment for Small Automatic Screw Machine as Seen from the Working Side.

plant. Power presses and other tools will be electrically driven in units. A complete overhead track system will facilitate the handling of the product during all stages of manufacture. The new plant will be equipped for hot

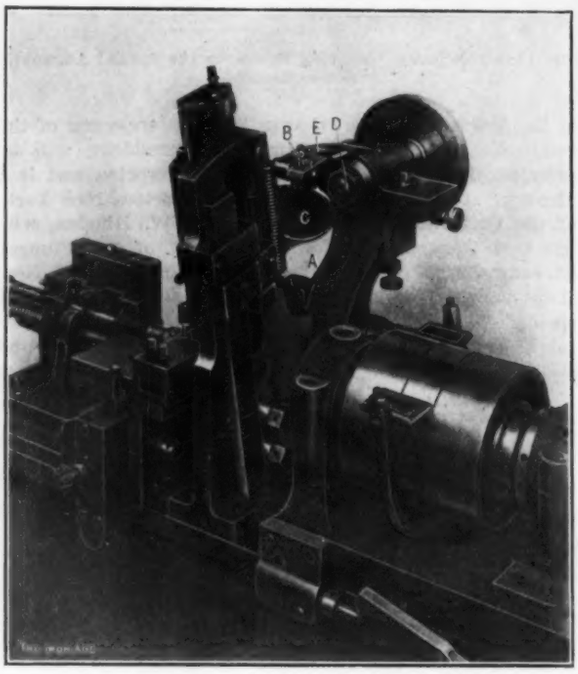


Fig. 14.—Another View of the Slotting Attachment from the Working Side.

work as well as for cold pressing. Full details of the shops are not yet available.

Niagara Power for Toronto.—A right of way for a power transmission line has been acquired by the Toronto & Niagara Power Company, between Niagara Falls and Toronto, Ontario. The distance between these two points is 86 miles, and when the current of Niagara is transmitted to Toronto, it will be the greatest distance yet covered by a Niagara transmission line. The width of the right of way acquired is 80 feet, provision not only being made for steel towers that will carry the necessary cables for power transmission purposes, but also for an electric railway which the Toronto & Hamilton Electric Railway Company proposes to build. The announced route of the right of way is from George street, Toronto, to Davenport, and from there in a northwesterly line through Toronto Junction to Lambton Mills, continuing parallel with the tracks of the Canadian Pacific Railway to Islington, and in a direct line to Clarkson, thence parallel with the Grand Trunk tracks to a point north of Bronte, and on in a direct line to Burlington. Here two routes are being considered. One would carry the transmission line across the beach, and another would carry it through Hamilton, but it is not decided which course will be followed. However, the line will continue to Stony Creek, and on up the mountain to the top of the escarpment back of Grimsby, from which point the line will run direct to Niagara Falls, Ontario. There will be

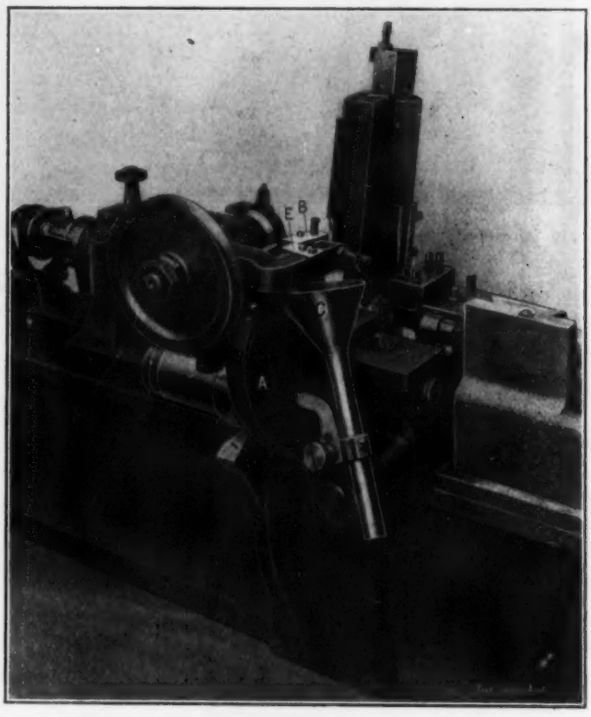


Fig. 15.—A View of the Slotting Attachment from the Rear Side of the Hartford Small Automatic Screw Machine.

a branch line 3½ miles long from Islington to New Toronto. Transformer stations are to be built at the head of St. George street and also on Yonge street, Toronto.

The damming of the River Thames at London is being considered by a royal commission. As there is a difference between high and low tide of 18 or 20 feet, all larger vessels must be handled in docks which can be closed by tidal gates. The object of the commission is to devise means for doing away with this inconvenience, and thus increasing the shipping facilities of the port. Among the plans presented is one for constructing a great dam across the Thames, from Gravesend to Tilbury. This would convert the river into a great inland lake, extending from Gravesend to Richmond. At the point selected for the dam the river bed is of fine chalk, and the structure would give a navigable depth of 65 feet at Gravesend and 32 feet at London Bridge, without any dredging. The proposed dam would be made of concrete, granite faced. The four locks would be 300, 500, 700 and 1000 feet long, and from 80 to 100 feet wide. The estimated cost is $18,200,000. As all the docks could be left open, there would be an annual saving of $250,000 in the cost of operating the gates.

The Plant of the International Harvester Company at Hamilton, Ontario.—II.

In our issue of last week a general description of the plant and a detailed description of the malleable iron foundry were printed.

The gray iron foundry is about the same size as the malleable foundry, and, like it, is arranged so that it may be duplicated when the company deems it advisable. It does not differ materially from other large gray iron foundries in its general plans, though there are features about it which are novel, and which we illustrate for that reason. Two 84-inch Whiting cupolas, a Whiting 4-ton spur-gear crank ladle and a special 5-ton electric traveling crane and hoist designed and built by Pawling & Harnischfeger of Milwaukee are included among the equipment.

Fig. 1.—General View of the 5-Ton Special Electric Traveling Hoist.

This crane runs on a single overhead 15-inch I-beam, its wheels bearing upon the lower flange of the beam. This runway is curved to permit the hoist to run close to the cupola and the entire length of the building. To enable the hoist to take the runway curves it is equipped with swivel trucks, there being two of four wheels each. A 10-horse-power motor is attached to swivels with the forward truck and gives a maximum trolley speed of 500 feet per minute under full load and 550 feet light. A travel brake is controlled from the cage to permit stopping the trolley travel independent of reversing the driving motor.

To the trucks is attached the hoist frame of steel channels, between which are placed the hoisting drum and mechanism. The 20-horse-power hoisting motor is placed partly beyond the limits of the channel frame, and the hoist motor pinion shaft extends through the hollow shaft of the hoisting drum. At the further end of the motor shaft is placed the speed reducing gearing, and included in this gear train is an automatic load brake. The maximum hoist speed is 40 feet per minute under full load and 90 feet light. A motor brake is placed at the end of the armature shaft to quickly stop its revolution when the current is shut off. A limit switch is also installed to cut off the current to prevent raising the bottom block against the drum. The total lift of the hoist is 21 feet, using four thicknesses of 9-16-inch rope. A cage traveling with the trolley is provided for the operator, and this cage holds all the operating mechanism. Direct current of 220 volts is used, two trolley wires being employed. These are supported by, but insulated from, the I-beam runway.

One of the very interesting features of this installation is the electrically operated switches in the track on which the ladle crane runs, placed at points where the track runs around in front of the cupolas. These switches are controlled by levers, operated by the operator in the crane cage, or by a man on the floor of the foundry. This electric arrangement is so constructed that when the switch is in an intermediate position, not set for either route, the current is cut off of the trolley wire feeding the crane motors, thus avoiding any chance of the crane running through the open switch.

It is this crane which manipulates the Whiting supply ladle above referred to. The molten metal is poured from this ladle into smaller pouring ladles, which are carried on hand-operated overhead pouring cranes, so designed as to give a motion crosswise and lengthwise of the building. This ladle is carried on the crane by means of an air hoist to permit the proper adjustment of the pouring hight of the ladle. At no stage of the process is it necessary for the operator to lift the weight of the molten metal.

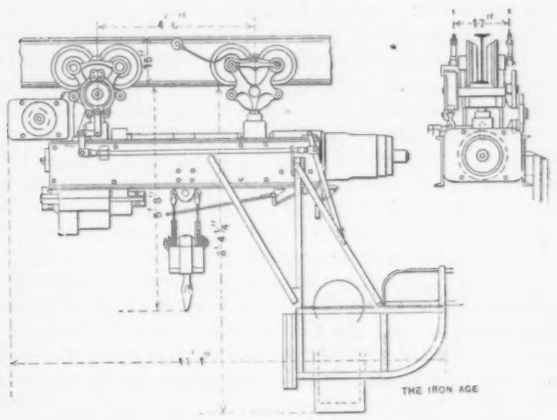


Fig. 2.—Details of the 5-Ton Special Electric Traveling Hoist.

The handling of the molds on the floor of the foundry is accomplished also by means of two-motion overhead traveling hand cranes, also provided with air hoists. In actual practice these cranes start at one end of the floor in the morning, distribute the flasks on the floor, and are shortly followed up by the pouring crane, a separate crew of men doing the pouring. A new method of handling pig iron and other supplies from the storage yard and shed outside of the gray and malleable iron foundries is now being considered. This method, when perfected, will do away with the ordinary method of wheeling in carts or wheelbarrow, as the material will all be handled by overhead machinery.

The core ovens in the gray and malleable iron foundries, which we illustrate briefly, are built so as to be fired with fuel oil in the furnace or combustion chamber at one end, the flames passing from the combustion chamber through 6-inch pipes to the other side of the oven into a vertical chamber, thence upward and returning to the stack above the fire chamber through a series of 4-inch pipes. The air blast for these burners is supplied by means of Sturtevant low pressure blowers. The furnace is arranged so that coal can be fired at any time instead of oil by simply stopping up the oil openings and opening up the grates. The cores are set into the furnace on top of the 4 and 6 inch pipes just described. Instead of having a few large doors, these ovens are made with a multitude of small doors in order that too much cold

air may not be admitted into the oven when the door is opened to put in or take out a charge of cores.

The pipes near the firing ends of the core ovens, which are subjected to great heat, are all lined with fire clay and are built in such a manner as to be easily removable —that is, by unbolting the flanges on the pipes—in order to replace the lining in case it is burned out.

The last structure to be erected in the plant is known as the knife and bar building. It is four stories and basement, of the slow-burning mill construction, and contains

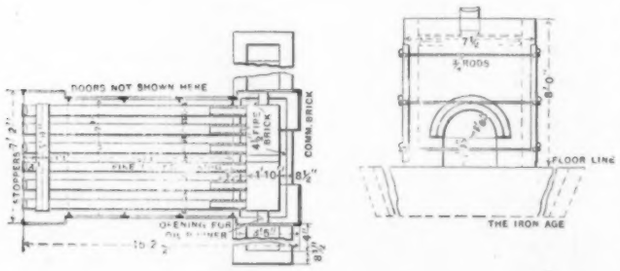


Fig. 3.—Plan and End Elevation of the Core Oven.

a number of features of interest. It is in this department that the cutting apparatus of harvesters and mowers is constructed, and it would require many pages of *The Iron Age* to describe the methods by which the various processes are accomplished; as, for instance, how multiple punches cut out the cutter bar sections, and how similar machines rivet them to the knife back at one operation. The whole building is planned with a view to reducing the labor cost on the cutting apparatus of harvesting machines to the lowest possible level consistent with the careful work that is necessary to make the cutting apparatus of the machines as perfect as ingenuity can devise. It is the cutting apparatus of harvesting machines that in the long run commends or condemns the machines, and for that reason unusual efforts have been put forth by the International Harvester Company not only in this plant, but in the others belonging to the company. Inasmuch, however, as the machinery processes in use in this building are practically the same as those in the McCormick, Deering, Plano and Champion factories, we will not go into details except to describe

The Method of Handling Grindstones,

which is an improvement on methods in vogue in other harvesting machine plants. Grindstones are received in cars, which are shunted on to a switch track adjoining the building. An outdoor electric crane, built by the Northern Engineering Works of Detroit, Mich., picks up the stones from the cars and either deposits them in the storage

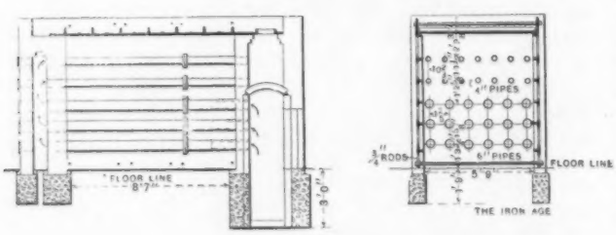


Fig. 4.—Longitudinal and Cross Section of the Core Oven.

yard outside or directly transfers them to a platform. From this platform they are picked up by smaller electrical traveling cranes which run the entire length of the inside of the building, over the grindstones, and out through the end of the building, so that they can reach the stones where they were deposited by the large crane. These cranes are so designed that the stones can be taken inside the building and placed directly upon the bearings of the grindstone frames, thus doing away with the manual handling of the stones from the time they reach the plant to the time they are doing their work.

As is well known, grindstones in plants of this kind are run under a continuous column of water, and the problem of getting rid of this water, with its residuum of sand and steel, has always been a difficult one. In ordinary practice this water is drained from pans below the grindstones to troughs, which ultimately lead it to settling basins, and thence into the sewer, but the sediment is of such a character that it clogs up the sewerage system and entails no end of expense, besides necessitating frequent cleaning of the settling basins. In the Hamilton plant the entire grinding room floor is concrete, and each grindstone has beneath it a vat which drains directly downward into a trough or gutter some feet below the floor, and this gutter empties its contents into two steel settling tanks or cars on wheels in the basement. These tanks are arranged so that the clear water from the top overflows into a trough and is carried into the sewers, gradually filling the tank with the sediment from the grindstones.

These settling tanks are two in number, and when one is filled the water is turned from this tank, by means of a switch in the trough, into an empty tank similar to the one just filled, on an adjoining track. The full tank is then run to the end of the building, &c., and lifted bodily by means of the yard crane to hopper cars on the switch tracks and through the yards to the dump along the water front.

The main floor of the building, aside from the portion underneath the grindstones, is also sloped, so that any water which escapes from the stones, or which is used

Fig. 5.—Crane System for Handling Grindstones.

in washing down the floor, will run into the same opening underneath the grindstones and through the trough, as above described.

The grindstones are driven by means of belts from a line shaft in the basement, thus leaving the main floor clear for the operation of the traveling crane. A large number of stones is in operation at all times, and this solution of the problem of getting rid of the waste, while involving large initial expense, is proving to be a source of economy, as well as offering relief from one of those troublesome details which are so annoying to the men responsible for large industrial operations.

Another interesting feature in connection with this plant is the use of naphtha gas for tempering sickle sections. The particular apparatus installed for the producing of this naphtha gas is that made by the Acme Gas Company of Chicago. It has been demonstrated that sickle sections can be heated for tempering much cheaper by this gas than with the ordinary city illuminating gas.

The Forge Shop.

The tendency in the manufacture of harvesting machines, and agricultural machinery in general, is to use more and more forgings and less and less castings. The forge department of the implement concern is therefore one of great importance, and in the International plant at Hamilton the forge shop is almost exactly as large as the gray iron foundry. This shop, while resembling other large implement blacksmith and forge shops in many particulars, has special machines and methods which came into vogue after the equipments of other large shops had been crystallized. It is out of the question to make an inventory of the equipment of this shop, and it is only possible to give a very brief glance at its complement of

machines. Among the machinery in this department is a 12,000-pound steam hammer, single frame, made by John Bertram & Sons, Dundas, Ontario, and a full complement of blacksmiths' forges, trip hammers ranging from 25 to 200 pounds, board drop hammers from 600 to 1000 pounds each, rope drop hammers, a rolling mill with 17-inch rolls for tapering seat springs, and other taper work, made by the Ajax Forge Company of Cleveland, Ohio; a full set of machinery for making steel wheels, including a bender, a tire welder, a machine for riveting spokes to hub, a spoke trimmer and a tire machine; double end punches, made by Williams, White & Co., Moline, Ill., John Bertram & Sons, and others; welding machines, made by the American Can Company, which are also used for shearing; I-beam benders, bulldozers, made by Williams, White & Co.; 6 foot gang punches, made by the same firm; a huge multiple punch, made by the Cleveland Punch & Shear Works, whose punch stock is 12 feet long, and will punch 47 ½-inch holes in ⅝-inch high carbon steel, for use in punching holes in rake heads and the like; single end punches, a complete system of Brightman shafting, turning, straightening and polishing machinery; Ajax upsetting machines for heavy work, an Acme bolt and upsetting machine, Acme ¾-inch headers, nut tappers of special design, built after plans of Mr. Haskins, formerly master mechanic of the McCormick division; Bignall & Keeler pipe threading machines, one handling pipe from 8 inches to 3 inches, and the other from 3 inches to ¼ inch, besides a host of other machines which one would expect to find in an up to date forge shop. The Haskins nut tapper deserves more than passing notice. The nuts are put into a pan at the top of the machine; this pan is made up of a series of cells or receptacles. These discharge one after another on to a revolving plate just below the pan, the centrifugal force throwing the nuts into the four chutes that lead down to the nut holders. There are four vertical spindles carrying taps that come up at regular intervals and tap four nuts; then the machine reverses and turns the taps back out of the nuts, whereupon the machine shoves four more nuts into the tapping position, the taps come up and tap these in turn, and so on. The four tapped nuts are pushed out onto the drainage plate seen at the front of the machine, across which they are slowly forced, as each of the four taps is pushed out onto the drainage plate; finally these nuts fall into the diagonal chute and are discharged into a keg or convenient receptacle. This machine was built by the Acme Machinery Company of Cleveland.

An Adjustable Twin Furnace.

One of the most novel devices in use in this building is an adjustable two-end heating furnace. It will be noted that the two furnaces rest on wheels on the track and that they are fed by rubber tubes for air and for oil, which permit of bringing the furnaces close to each other or separating them to any reasonable distance, according to the requirements of the special bar to be heated. In the manufacture of agricultural machinery there are many bars which may be advantageously heated at both ends at once by being able to insert one end into one furnace and the other into the other furnace, making a great saving in time as well as effecting a great uniformity of heat. The same furnace finds many uses in heating bars that are to be bent into shape by bulldozers.

Oil is used for fuel throughout the building, and large oil storage tanks are buried in the yard not far from its outer walls, from which the oil is fed to the various forges and furnaces by means of compressed air, which exerts only sufficient pressure (about 15 pounds to the square inch) to give the desired force at the burner.

Woodworking Department.

While the iron and steel portions of the harvesting machines are being made in the buildings just described, other men are fashioning the parts of the machine that are made of wood. The woodworking shop contains a complement of the latest machinery devised for the speedy and accurate manipulation of wood into required

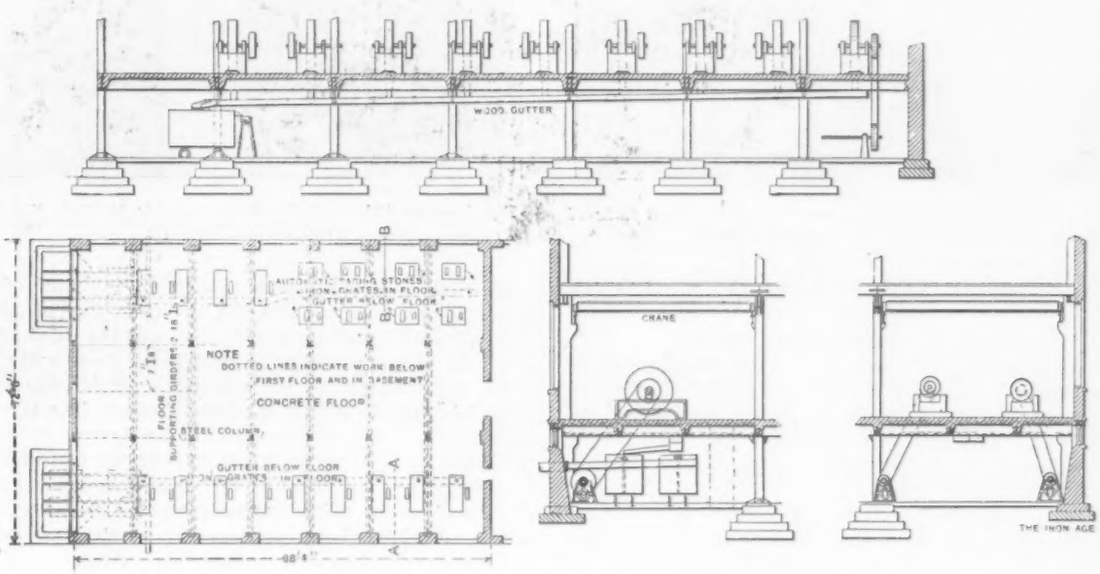


Fig. 8.—Details of Construction of the Grinding Room.

form. It would be out of the question even to name all these machines. There are several tools, however, which because of their novelty deserve mention, among them being a multiple borer, made by Greenlee Brothers, Chicago, which will bore five vertical holes and four horizontal holes at one operation in the pole or tongue of the machine, and so arranged that it will bore as many as 14 holes at one time. A machine for transforming a square bar of wood into the tapered tongue at one pass is in operation, having been furnished by Rowley & Hermance of Williamsport, Pa. Pringle & Brodie of Chicago have installed a multiple boring machine on the universal joint principle, which we illustrate in Fig. 9. This machine consists of three sections of seven spindles each, making it possible to bore 21 holes at one thrust of the lever. The spindles are arranged in three gangs, seven in a gang, and have a lateral adjustment across the table of 14 inches. They are so arranged that all the spindles can be brought as close together as 1½ inch centers, and the extreme range of machine from outside to outside of spindles is 108 inches. Three independent tables are used, which can be locked together and all the tables operated as one, or they may be disengaged and worked separately, using three operatives or less. The tables tilt to an angle of 45 degrees, and each table has a separate independent vertical adjustment. Any number of spindles can be thrown out of work by simply loosening a screw and moving the spindle

out of gear. The vertical shafts have a ball on the end that fits in a socket. This machine is self-contained, requiring no countershaft, as it is belted direct from the line shaft to a countershaft in the rear of the machine and directly connected.

Several new types of sandpapering machines furnished by McGregor & Gourley Company, Limited, Galt, Ontario, are also installed here. This department also includes shapers, automatic borers, multiple borers, many planers of different types, a multitude of lathes, sandpapering machines, dowel machines, riveters, spoke drives, swing saws, band saws, rip saws, &c.

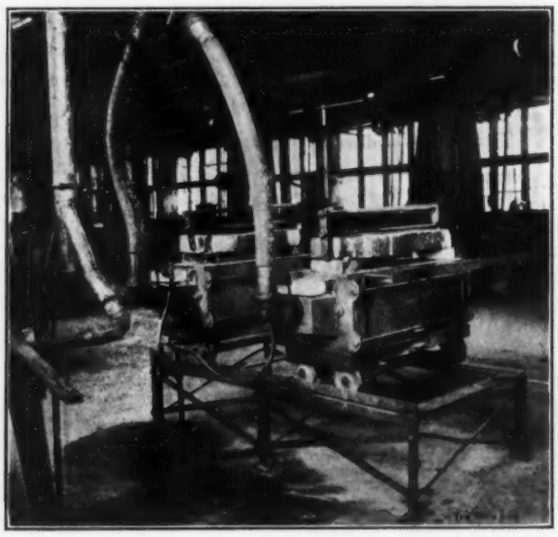


Fig. 7.—An Adjustable Twin Furnace, Permitting Both Ends of a Bar to Be Heated Simultaneously.

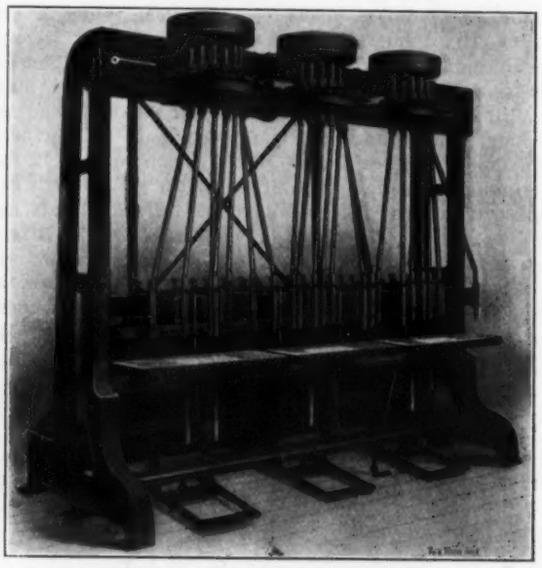


Fig. 9.—The Pringle & Brodie Adjustable Multiple Spindle Wood Boring Machine.

Disposing of Sawdust and Waste.

In contrast to the ordinary wood room, the atmosphere of the harvester plant at Hamilton is almost as clear as that of the business man's office. This is explained by the system which has been installed for disposing of dust and waste. Each individual machine works as much as possible inside of a hood, and a suction of air inside of this hood carries the waste to a series of collecting pipes, which convey it to and through three Sturtevant fans—two 80-inch and one 60-inch. This waste is carried a distance of 540 feet to the boiler house by two different lines. One of these lines is for long shavings from roller lathes, and the other is for carrying the rest of the waste, sawdust, floor sweepings, &c. Each of these lines has its own system of collectors or cyclones. These cyclones are interesting because of the saving they effect in size of pipe and in the power required to convey the waste materials to the boiler house. One of these, known as a relief cyclone, is in the center of the roof of the wood shop. By means of it the shavings are separated from a great volume of air before they enter the main conveying pipes leading to the boiler house. This is accomplished by the use of two fans, one of which drives the waste materials into the cyclone proper, and the other forces them from this discharge pipe into the main. This cyclone is so arranged that in case one of the fans gives out the other may force the materials independently. It will be seen by reference to the diagram, Fig. 10, that three main lines converge in this collector or cyclone, and that it handles all the waste from both ends of the building, except from the short line of piping indicated at the top of the illustration, which represents the independent line carrying heavier shavings from the roller lathes.

Similar collectors are stationed on the roof of the power house, Fig. 16, two for the twin line of piping from the main wood room collector, and the third at the terminus of the roller lathe line. From these collectors, which further separate the shavings from air, the waste materials may be conveyed either directly into the furnaces of the boilers or deposited in a bin, by-pass valves in the down pipes being arranged so that the material can be sent either way at will. From these bins a series of pipes lead to the boiler furnaces, whence the waste materials stored reach the furnaces by gravity assisted by the natural draft of the furnaces. The whole system of disposing of waste was installed by Allington & Curtis of Saginaw, Mich.

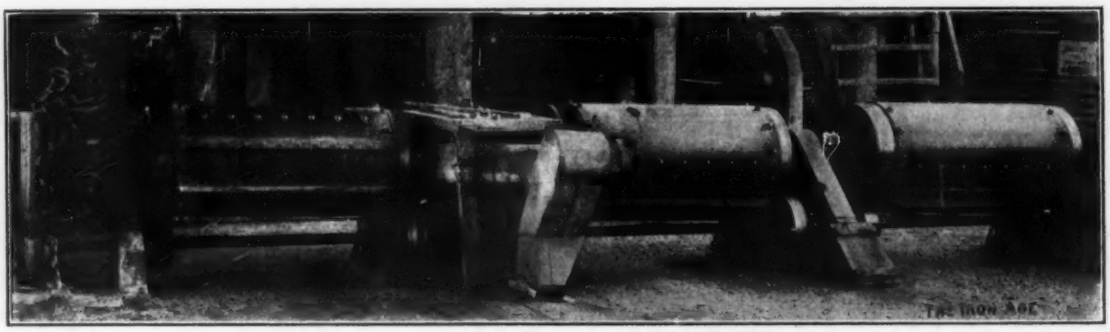


Fig. 8.—Tumbling Mills, Showing Method of Driving and Dust Exhaust System.

Paint Shop.

This is a four-story building, and designed to be absolutely fire proof, the interior construction being steel, protected with concrete, the floors being of reinforced concrete. The walls of the building are brick, the windows fitted with wire glass, set in metal frames. All doors are provided with the Standard Underwriters' fire doors.

The tanks are set into depressions in the floor, so that the top of the tank is at the floor level. Each tank is in effect a steel truck having its own wheels, and in the bottom of the vat in which it sits is arranged a pneumatic

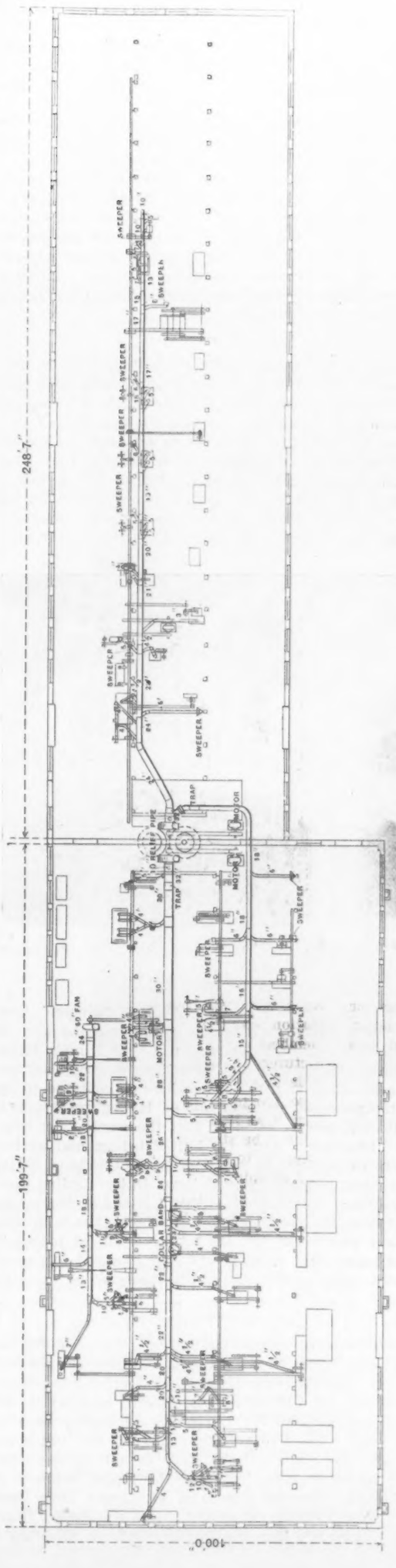


Fig. 10.—Plan of the Wood Working Shop, Showing Dust and Shavings Exhaust System.

hoist, which raises the truck, or tank, so that its wheels are on the floor level, from which position it can be rolled to one side and a tank containing paint of another color substituted for it quickly. Parts to be painted come to the vat on overhead carriers connected with air hoists, and when the carrier reaches a point over the vat the hoist is lowered and the part immersed in the paint and held there a sufficient length of time. Supplementing

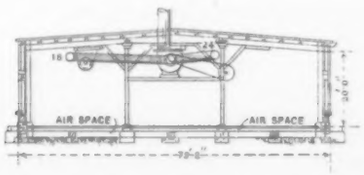


Fig. 11.—End Elevation of Wood Working Shop.

this overhead carrier system for incoming work another carrying system raised somewhat above the floor takes the painted articles and transfers them to another part of the building, where they are placed in racks to dry. In painting mower wheels, for instance, they are assembled in gangs of ten on a common axle, suspended from the air hoist, and in this position are immersed in the tank. When they are hoisted out of the tank the overhead carrier deposits them on the platform carrier or tramway, in which the ends of the axle on which the wheels are strung rest on endless chains, which carry them to the opposite end of the building. This saves the

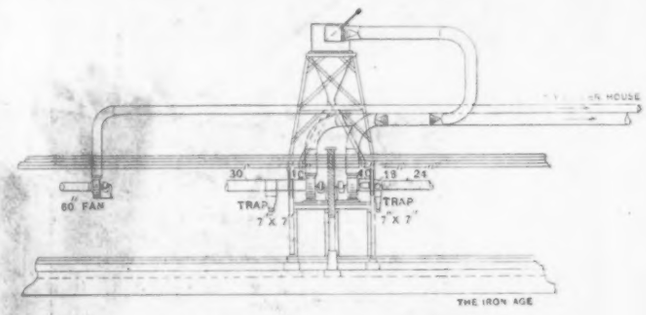


Fig. 12.—The Collector, or "Cyclone."

delay involved in the usual system of requiring the same carrying device to convey materials to and from the dipping vats. The dipping of small parts is done by packing them in small baskets with wire bottoms, the whole receptacle being immersed in the tank by means of the traveling crane and hoist above referred to. (See Fig. 14.)

Each room of this paint shop is provided with a large flue, running directly up through the roof, the purpose of this flue being to take out the inflammable and explosive gases which escape during the period of painting, and in case of fire these gases would escape readily and

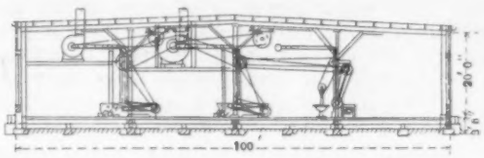


Fig. 13.—End Elevation of Wood Working Shop.

prevent an explosion. The heating apparatus is designed to furnish hot dry air at all times to the dipping and drying rooms.

Some parts of the machines are painted singly, and some are assembled before painting. For that reason the paint shop and assembling department closely adjoin, to facilitate the speedy transfer of parts from one department to the other.

Agricultural machines, in order to be as proof as possible against destruction due to the general custom of permitting them to lie outdoors all winters, are successively

dipped in paint as water proof as the art has been able to develop and afterward decorated by hand. In the transfer of parts from the various departments to the erecting room, in their assembling and erection, and in transferring them from that department to the paint room, or *vice-versa*, automatic carrying devices are used wherever possible, in order to keep the parts of the finished machines moving more rapidly than would be possible with human motive power.

Hand Trucks as Labor Savers

Throughout the factory a general system of handling parts by means of hand push trucks has been inaugurated, thus doing away with the method commonly used among manufacturers of bringing the material to a machine on a truck, piling it upon the floor, doing the necessary work on the machine, piling the material again on the floor, and again loading it onto the trucks to be transferred to some other machine.

In the system installed the truck is pushed up to a machine, the man simply removing the material from the truck, doing the necessary work upon it and depositing

Fig 14.—Apparatus for Dipping Articles Into Paint Vats.

it upon another truck, ready to be carried to the place for the next operation, thus cutting out all unnecessary labor. This necessitates a large number of trucks, but has proved to be a decided economy.

The Power Station.

Nearly all the power for the Hamilton plant of the International Harvester Company is furnished by the Cataract Power Company, whose water power is 35 miles distant. This water power is what is known as the Decew Falls, near St. Catherine's, where the water enters through the old channel of the Welland Canal on the level of Lake Erie, and falls through penstocks 7 feet in diameter a distance of over 800 feet, involving a vertical fall of 267 feet. Turbines at the bottom of these penstocks generate the electricity, which is transferred to the Victoria avenue power station at Hamilton and to other cities by means of standard aluminum wires, three-phase, 66 2-3 cycles, 45,000 volts. The high voltage furnished by the power company at its first transformer house is stepped down successively to 600 volts at the International Company's own power station by means of seven Westinghouse transformers. This local power station of the plant is interesting as embodying a number of new ideas. Its switch board was furnished by the General Electric Company. Its ammeters are the Thompson system, and it has the Stanley static ground detectors. Cables from the switchboard rack are carried over the back of the board, whence they lead vertically, by means of risers, in 11 sections to pole lines, thence outward through bushings in the wall.

The whole plant is heated by the Sturtevant hot blast system and is looked upon by that company as being one of the largest and most efficient installations they have made.

All the railroad trackage ramifying through the plant is owned by the company, who operate their own locomotives and have their own switching crews.

The design and construction of the buildings is due to T. M. Brooks, chief engineer, first for the Deering Harvester Company, and later and now for the International Harvester Company, acting under the general supervision of B. A. Kennedy, formerly general superintendent of the Deering Harvester Company, and now manager of construction and equipment for the International Harvester Company.

Status of the Uniform Bill of Lading.—The proposition on the part of leading trunk line roads to force upon shippers in the Middle West a uniform bill of lading has met with such opposition that the Uniform Bill of Lading Committee has decided not to endeavor to enforce the obnoxious bill of lading until January 1, 1905. The original proposition was that the bill of lading was to go into effect last April. Owing to opposition on the part of shippers the date was postponed until October 1, and now has been further extended for the same reason.

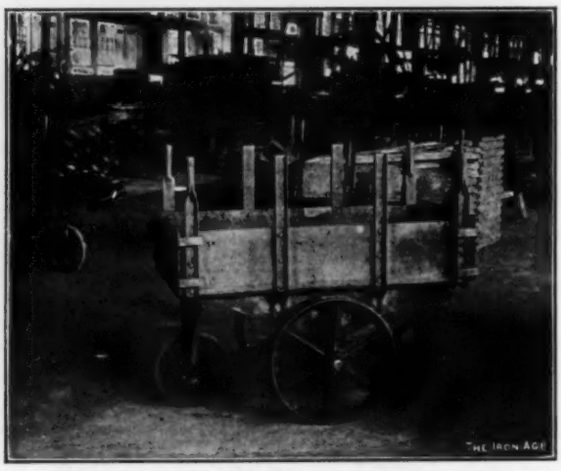


Fig. 15.—One of the Steel Hand Trucks, Which Are Extensively Used.

An association known as the American Shippers' Association was formed in Chicago several months ago, its members consisting of delegates from the Illinois Manufacturers' Association and about 75 other organizations. This association advises its members to continue to oppose the proposed uniform bill of lading, to refuse to sign it as it now is, to insist that the words "not negotiable" be stricken from the bill of lading, and advises shippers to continue to use their present bills of lading and shipping receipts. The Uniform Bill of Lading Committee of the railroads on August 1 issued a circular receding from the position taken by the railroads on two technical points, but left the proposed bill of lading in such a shape that shippers are still required to pay 20 per cent. premium for shipments consigned at carriers' risk.

An interesting programme has been arranged for the annual meeting in New York of the Society of Chemical Industry. Sir William Ramsay, the retiring president, will deliver an address at the general meeting in the gymnasium of Columbia University on September 8 at 10.30 a.m. On Friday, September 9, and Saturday, September 10, visits will be made to various manufacturing establishments, including the copper refinery of the Nichols Chemical Company, at Laurel Hill; New Jersey Zinc Company's spiegel furnace; Pacific Coast Borax Company's Bayonne factory, Balbach Smelting &

Refining Company, Devoe & Raynolds Paint Works, and the Tidewater Oil Company refinery. There will also be a roof garden reception at the Majestic Hotel, and a smoker and vaudeville entertainment at Liederkranz Hall. On Saturday, September 11, an excursion will be made up the Hudson River. The trip to St. Louis will begin on Monday, September 12, and terminate Thursday, September 29. During these 17 days visits will also be made to points of interest *en route*, and on the return trip a day will be spent at Niagara Falls. The headquarters of the society while in New York will be at the Hotel Seville, Madison avenue and Twenty-ninth street.

Success of Profit Sharing Plan of Pittsburgh Coal Company.

The profit sharing plan inaugurated several years ago by the Pittsburgh Coal Company of Pittsburgh for the benefit of its employees has been very successful. J. B. L. Hornberger, president of the Pittsburgh Coal Company Employees' Association, has just made a statement regarding the plan pursued so successfully, and which is as follows:

Under this plan employees purchase preferred stock of the company through the Pittsburgh Coal Company Employees' Association, and pay for the same at the rate of $1 per month per share. They have the privilege of withdrawing from their contracts at any time upon 30 days' notice, and when withdrawals are made purchasers receive back the full amount of their payments, together with interest at the rate of 5 per cent. per annum. A new series of stock purchase contracts begins the first day of each month. Since December 1, 1900, there have been 45 series of stock purchase contracts, the first three of which matured on May 1, June 1 and Aug. 1, 1904, respectively.

The association purchases the company's preferred stock on the market from time to time and the dividends paid on the stock so purchased accrue to the individual purchasers, all expenses of the association being paid by the Pittsburgh Coal Company. The earnings thus accumulated by the association during the first 45 months of its operations, or up to July 31, 1904, aggregated $106,516.30. These earnings are divided pro rata among all the purchasers who continue their monthly payments until contracts mature.

The portions of earnings accruing to the purchasers in the first, second and third series, which have matured, were sufficient to cut down the net cost to the purchasers to about $42 per share, and it is estimated that the cost of the stock to the purchasers in the next 10 or 12 series of contracts will not materially exceed this amount.

The contracts which have matured and on which delivery of stock has already been made cover 1553 shares, leaving in force at this time 1020 contracts, covering 8152 shares.

During the earlier months of this year, in which general business conditions made it necessary to close down a number of mines and to curtail the output of the mines remaining in operation, a number of the company's employees were forced to fall back upon the reserve funds represented by their payments into the Employees' Association. They were enabled to do this by canceling their contracts and drawing their money, plus interest at the rate of 5 per cent. per annum.

Fig. 16.—The Boiler House, Showing the Sawdust and ShavingsCollector, or "Cyclone."

These withdrawals from the association cut down the number of purchasers very materially, but since the mines have resumed more active operation in filling the Northwestern contracts for coal deliverable by lake there has been a marked increase in the number of purchasers of preferred stock through the association, so that there are at this time 1020 purchasers, paying for 8152 shares. It is believed that these totals will be largely increased during the remaining months of this year.

The benefits to the employees under this plan are direct and substantial. While the benefits to the company are indirect, they are none the less substantial and altogether satisfactory. At the end of four years' experience it may be said of the Pittsburg Coal Company's profit sharing plan that it is eminently successful.

A French View of the English Iron Industry.—II.*

Wales.

This district, in which the production of steel has risen 90 per cent. between 1898 and 1901, has more recently found itself in a singular and pretty grave position. Being the principal district to furnish the manufacturing industries of Birmingham, being the great exporter of rails to the colonies, manufacturing almost all of the tin plate and of black, galvanized and corrugated plates in England, fed, as it is, by an admirable coal basin, this district developed steadily from a commercial point of view and its shipments increased regularly. Its equipment, so far as the production of the crude metal is concerned, was superannuated; blast furnaces, Bessemer converters, and the greater number of the merchant mills, all of these were old. The sheet mills and the open hearth steel works were mostly modern or had been recently improved. They were widely scattered, however, and were forced to purchase their pig iron from furnaces whose cost was too high, and therefore the mills found themselves under conditions as to production which were very imperfect. The result is that in 1903 the Welsh sheet mills imported German sheet bars in very large quantities; thus the port of Newport alone received in 1903 more than 250,000 tons of German steel as compared with 89,000 tons in 1902. The Welsh steel works refused to sell bars at less than 85 shillings when the Germans were delivering them at 82 shillings 6 pence, and the Americans at 80 shillings. The result was that, out of 99 open hearth steel furnaces, 35 were idle. On the other hand, for a number of years past the blast furnaces have not provided pig iron enough for the steel manufacturers and the latter have been obliged to import. Thus while the rolling mills were well supplied with orders, the blast furnaces and the steel works were stopped. It may be readily understood how the appreciation of these facts stirred up the manufacturers and the working population.

There correspond with the two great specialties of Wales, rails and sheets and tin plate, two groups of producers. The manufacturers of rails have been successors of the old forge masters of the Dowlais Basin, established 40 miles from the coast, in the center of the coal district, the old iron mines being exhausted. Since the closing down recently of the old Bessemer steel works of the Tredegar and Ebbw Vale companies, which were departments of great colliery companies, there is only one great producer of rails, Guest, Keen & Nettlefolds (not taking into account Blaenavon, which has been idle for three years). The firm of Guest, Keen & Nettlefolds consolidated in 1902 with the Dowlais Cardiff Company, with its two groups of works, each equipped with furnaces, steel works and rolling mills, and with its important collieries with a production of 2,000,000 tons per year of coal. There were added to this the old Cyfartha plant and the steel works at Newport. The result was that 28 furnaces, 12 converters and 12 open hearth furnaces have been united under one management. Since, out of the 69 furnaces which Wales nominally possesses, the 20 or 22 which are regularly in blast nearly all belong to the new company, the fact will be appreciated that the greater part of the production of pig iron or of Bessemer steel and of rails has been seized by this company, and that an important part of the production of open hearth sheet bars has been also taken. In 1901 and 1902 the remodeling of the works was confided to an American engineer. In 1903 the blast furnaces were in shape and the open hearth plants had been improved. It is proposed to remodel the Bessemer steel works at Cardiff. The result of these efforts has been to permit a recovery in the production of Bessemer steel in Wales from 346,000 tons in 1902 to 401,000 tons in 1903, and this has helped an increased demand locally for bars and intermediate products. A good deal still remains to be done, however. There must be a complete transformation of the equipment, which is generally old, and which is distributed in a number of mills, the great part being situated 40 miles from the ports of arrival of the ore. Then, too, the resources of the undertaking, so far as iron ore is concerned, are limited to a participation of coal trade in the Spanish mines of Orconera, but the company is prosperous and the activity of its management holds out the promise of favorable developments for the future. At the present time it is one of the most powerful producing companies in the kingdom.

The sheet mills, which constitute the second group of producers in Wales, are distributed in the most diverse manner. Some of them are located in the coal district in the interior (with 39 open hearth furnaces, 17 of which were out of blast in January last). Some of them are located at the different ports of the coast near the tin plate mills with which some of them are directly connected. These ports are Swansea, Cardiff, Newport, with 59 furnaces, 18 of which were out of blast in January last.

If there be excepted the open hearth plants of Guest-Keen and of Ebbw Vale, and two other concerns, each having two furnaces, then all the independent sheet mills purchase their pig iron and their fuel. Not one of them possesses a plant larger than six furnaces, and the greater number of the latter are not larger in capacity than 30 tons, although a fairly large number are of relatively recent date.

In spite of the increase in the cost of coal, the Welsh coke is remarkably cheap for those works which produce it themselves in Coppee and Welsh ovens. This is the case with nearly all of the different interests. They use two-thirds steam slack and one-third highly bituminous fines. Three years ago detailed accounts of cost of four coke plants in Wales were published. With washed fines costing 4 shillings to 4 shillings 9 pence, they produced coke at 7 shillings 9 pence and 9 shillings 1 penny, all expenses included. The works must pay a certain cost of transportation of the fine coal to their ovens. The coke therefore costs, at the oven, 10 shillings to 10 shillings 6 pence. The employment of by-product ovens, while lately adopted in the district, would permit the reduction of these prices by 2 shillings 6 pence to 3 shillings 6 pence, according to the value of the by-products. The consumption of coke per ton of pig iron is 960 to 1000 kg. in the case of new furnaces and 1050 kg. on an average. The Orconera ore cost in 1899 to the Dowlais Cardiff Company 5 shillings, f.o.b. Spanish coast, which would be 10 shillings at Cardiff and 11 shillings 3 pence at Dowlais. The ores purchased in the open market come either from Bilbao or from the south of Spain. The selling price of Bilbao ores has gradually increased from 9 shillings in 1888, delivered Cardiff, 50 per cent. base, to 12 shillings 3 pence in 1895, 21 shillings in 1900, and 14 shillings 3 pence to 14 shillings 9 pence at present. So far as the quality is concerned, it has noticeably declined, and the grade does not now exceed 47 per cent., with 1 to 2 per cent. manganese. The ores from the south of Spain, Cartagena and Almeria are rarely richer, and the lack of means of transportation to the coast, as well as the high freight (6 shillings 3 pence, as compared with 4 shillings from Bilbao), do not entirely compensate for the low cost of mining. The Cardiff works permitted the publication in 1901 of the cost of their hematite pig, which was as follows:

	s.	d.
Ore	22	7
Coke	10	7
Limestone	1	3
Transportation to the works	1	5
Cost of manufacture	4	6
Total	40	3

Another works in the coal basin at the same time presented the following cost for their Bessemer steel ingots for rails:

	s.	d.
Pig iron	42	8
Scrap	1	7
Spiegel	3	5
Fuel	1	2
Materials	0	10
Wages	2	10
Miscellaneous	4	2
Total	56	6

* Continued from *The Iron Age*, September 1, page 21.

This figure ought to be less with a more modern equipment. The cost of the bloom would be as follows:

	s.	d.
Steel	58	5
Fuel	1	8
Wages	1	6
Miscellaneous	1	10
Total	63	6

Wales has made very few efforts toward the adoption of the basic process. If exception be made in the case of eight furnaces situated on the northern coast, absolutely outside of the basin which we have stated, there are only eight basic furnaces, which are all a number of years old. A Talbot furnace is under construction.

West Cumberland and Lancashire.

Unlike Wales, the districts of the Northeast are exporters of pig iron. This is due to the fact that so far as steel is concerned, they produce practically only rails (485,000 tons in 1903 out of a total production of ingots of 653,000 tons Bessemer and 183,000 tons open hearth). The manufacture of rails is concentrated in three works, Barrow, Derwent and Moss Bay. These relatively satisfactory conditions have permitted the Northeast to take advantage of the strong demand for rails, shipping in 1903 485,000 tons, as compared with 352,000 tons in 1902. Still, here, as in Wales, the equipment is mediocre, and the production of pig iron and its conversion are carried out only at a high cost. The result is that the exports of pig iron have fallen from 610,000 tons in 1902 to 344,000 tons in 1903. So many blast furnaces have been put out that the statistics, showing a production of 1,392,000 tons in 1903, as compared to 1,472,000 tons in 1902, have created considerable surprise. Finally, an important steel plant which supplied the tin plate works at Newport has stopped work. It is fair to conclude, therefore, that the Northeast is unfavorably situated as to production and as to supply of material. As a matter of fact, so far as the latter is concerned, the conditions have always been imperfect, because all the coke consumed in the Northeast must be purchased in the Durham district. Recently, in the face of a depression, coke cost 17 shillings 6 pence to the furnaces, the cost of transportation, included in this, being 6 shillings to 7 shillings 6 pence. The Cumberland district, at least, owned important and rich deposits of hematite, but while these mines yielded as much as 600,000 tons in 1855, they are now being exhausted rapidly. The Spanish ores, which are used to the extent of one-third at the present time, have increased in price and have deteriorated in quality. So far as the equipment of the works of the Northeast is concerned, it is so old that there are cited as exceptional enterprises the total reconstruction of one furnace at the works of the Millom & Askam Company, which has nine furnaces in all; the ordering of two blowing engines for the Barrow Steel Works, which cannot run their 12 furnaces fully because there is not blast enough; and, finally, the rather unsuccessful remodeling carried out in 1898 in the steel works of the same company.

Like the works, the local mines are distributed into two groups. At the south are those of Hodbarrow, and 30 miles north those of Cleator, near Whitehaven. Like all deposits, they are irregular in depth, so that the production per man and the cost of mining vary considerably. The deposits consist of red heamatites carrying 44 per cent. of iron. Those at Cleator are very siliceous, which calls for an excess of coke and of limestone. Besides, the last named are of little importance, the majority of them being exhausted. However, new discoveries are recently reported. They do not suffice to supply the furnaces of the vicinity, which find it necessary to draw not alone upon foreign sources, but also upon the deposits of Hodbarrow. The latter carry as much as 55 per cent. of iron, the ore being extremely pure. For many years the mine was the most productive in the world. To-day it is necessary to hunt under the ocean for its last riches. One breakwater has already been used for this purpose, and a more extensive second one is under construction. It will cost £750,000, and is to permit the extraction during 50 years of 400,000 tons per annum. In 1890 it is estimated that the maximum cost of mining in Cumberland amounted to 5 to 7 shillings, inclusive of the very high royalty of 1 shilling 6 pence. Some of the softer ores of Barrow came down to 4 shillings 3 pence. All these prices have increased, and the utilization of expensive breakwaters is not calculated to reduce them.

In 1890 the selling prices were not above 9 shillings for the best qualities. To-day, although we are in the midst of a depression, they are sold at 16 shillings 6 pence. Even the lower qualities are sold at 9 to 12 shillings. The transportation to the works varies greatly. It is reduced to 2 or 5 miles at Barrow. In the northern group, on the contrary, it is always longer, and calls for certain hauls from Hodbarrow to Workington or Maryport. On an average it costs 1 shilling 10 pence. The works only in rare instances possess sufficient mining property. The Hodbarrow and the leading other mines are in the hands of independent mining companies.

At this time Spanish ores cost, delivered into Cumberland, 15 shillings, 50 per cent. base. Limestone is available almost everywhere. The cost is estimated at 1 shilling 10 pence, to which must be added 1 shilling for the average haul. The iron contents of the charges varies from 48 to 50 per cent., the consumption of coke in current practice being 1060 kg. in furnaces which usually produce from 500 to 600 tons per week. By way of exception, the new furnace at Askam yields from 1600 to 1700 tons per week, and has worked on 970 kg. of coke.

There are in the Northeast district only three great coast steel works. Barrow is the only one controlling its own colliery, which, it is true, is 100 miles distant, and has been placed in operation only slowly. It seems, however, now to be one of the principal sources of profit to this enterprise, the ancient prosperity of which has for a long time decreased notably. The plant receives only one-third of its coke, selling the greater part at the mine. Under normal conditions its own ore mines yield 400,000 to 500,000 tons per annum. In 1901 and 1902 this production declined by 100,000 tons, and the company purchases larger and larger quantities of ore. The result is that property abroad is being hunted for actively. In the northern district at Workington the Moss Bay Company possesses a number of local mines. Some of them are exhausted; others were acquired in 1899. The company receives large shipments from Carthagena, Spain, under important contracts. Successive improvements in equipment have permitted this company, which is less powerful than the one just referred to, to considerably improve its position in the last few years. The adjoining works at Derwent, which also produce rails, belong to the Cammells at Sheffield, well known as manufacturers of ordnance, &c. These supply their furnaces, a number of which are located at Maryport, with ores from their own mines at Carthagena, which have been tapped during the last year by a special line of road. The works are counted only a minor source of profit in the total of this brilliant undertaking.

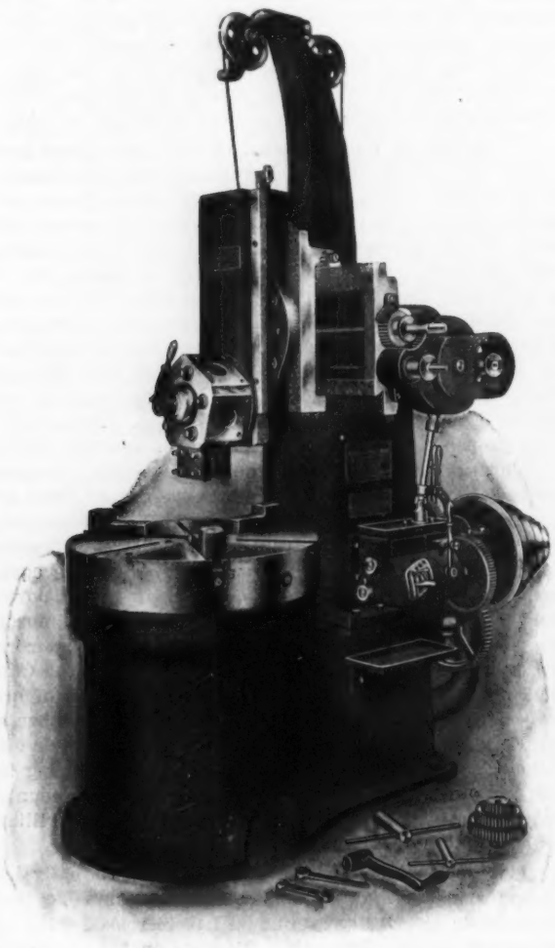
The steel works of the Northeast have gradually lost their former advantages, so far as the ore is concerned, while their inferiority as to fuel has increased with the enhanced prices. The other districts in the meantime have been improving their sources of supply. In 1890 this district produced pig iron at 4 shillings 3 pence, according to Sir Lowthian Bell. In 1903 the furnaces of the Cumberland district preferred to lie idle rather than sell at 54 shillings. Under these conditions their plant could be greatly improved, and the steel works of the district appear to have nothing else in their favor than the system of completely specializing their mills for the production of rails. The plate mills of Barrow have been almost completely idle during the last two years. Eight acid open hearth furnaces of 20 to 50 tons supply them.

Besides these steel works, there are certain groups of blast furnaces, some of which have given pretty satisfactory results and which ship their pure pig iron to other districts or send it abroad. Among these are, in the northern part of the district, the West Cumberland Hematite, Carnforth, North Longdale, Northwestern, and in the south the two united works of Millom & Askam. The latter company receives its ores from local mines, some

of them recently acquired, from the adjacent mines of the Hodbarrow Company or from Kennedy Brothers, and, finally, from the mines of Alquife, 10 miles from Cadiz, Spain. The latter yield a good ore, carrying 47 per cent., easily mined, and transported to the port of Almeria by special line. The one-third participation of the company in the enterprise cost, however, £150,000. In spite of these advantages, the company could not keep going at the beginning of this year more than one furnace out of the nine which it possesses. The four undertakings above enumerated were idle at the same time. It is true, however, that since then this situation has considerably improved. Certain furnaces in the Cumberland district also produce slightly phosphoric pig with ores drawn from Porman, near Carthagena, which is sold at 13 to 14 shillings, 50 per cent. base.

The New Baush Thirty-Inch Boring and Turning Mill.

The latest new tool from the works of the Baush Machine Tool Company of Springfield, Mass., is a 30-inch



THE BAUSH VERTICAL 30-INCH BORING AND TURNING MILL WITH SWIVEL HEAD.

vertical boring and turning mill, having a turret for holding five tools, mounted on a swiveling head. The distance of the column from the center of the table and the highest position of the cross rail will admit work up to 32 inches in diameter and 15½ inches high. The table is fitted with a three-jaw combined independent and universal chuck, or a plain table with or without jaws. The diameter of the chuck is 30 inches. There are eight changes of speed possible to the chuck or face plate, ranging from 73 to 18 revolutions per minute, without the use of back gears and from 9.3 to 2.28 revolutions per minute with back gears. The surface of the face plate, or chuck, stands about 2¾ feet above the floor. The chuck is bolted to a large driving gear which has an outer bearing, arranged to be continually lubricated by an automatic oiling device located in the bed. The center spindle, which is 7 inches in diameter and 18 inches long, has an angular bearing to receive side strains, and check nuts on the under side as a precaution against any tendency to lift.

The turret slide has a traverse of 16 inches, and in the swivel head can be set over at any angle up to 30 degrees. It will face up to 30 inches in diameter. The turret is 10 inches in diameter, and has five sides bored with 2 3-16 inch holes, unless otherwise specified. Near the base of the upright is placed a Hendey-Norton change gear device for feeding and thread cutting. This provides for the cutting of threads, 6, 7, 8, 9, 10, 12, 14, 16, 18 and 20 to the inch; 20 changes of vertical feed from 0.0125 to 0.1666 inch per revolution of the table, and 20 changes of horizontal feed, from 0.015 to 0.211 inch per revolution of the table.

The mill is driven by a four step cone pulley of large diameter, accommodating a 3-inch belt, or can be arranged for motor drive. The back gears are thrown by means of a lever, and do not require the use of a lock nut. The countershaft has a four-step cone to correspond with the driving cone pulley of the machine, and is intended to run at 200 revolutions per minute. The machine is self-contained, and does not require a special foundation. It occupies a floor space of 6 feet 9 inches by 4 feet, and weighs, complete, about 5900 pounds.

Superheated Steam for Locomotives.

The use of superheated steam in locomotives in Germany is reported upon by D. B. Mason, United States Vice and Deputy Consul-General, at Berlin. An accurate record was kept of the performance of a twin locomotive using superheated steam, and of two similar compound locomotives using ordinary steam, and it was found that the engine with superheater showed an economy in the amount of coal used amounting to 10.9 per cent. and of 25.8 per cent. in the amount of water used. The engine with superheater made much better time at starting than the compound engines, and better time in climbing a steep grade. Judging by calculations based on the amount of steam produced, it was estimated that the real saving in coal should have been 15.3 per cent. instead of 10.9 per cent. Even if no economy in fuel were attained, the fact that the compound engine can be replaced by the simpler twin engine, with increase of power and lower pressures in the boiler, is enough to warrant the use of superheated steam.

Superior Tap Company, Springfield, Vt., is putting on the market Cedaroleum slush, a protector and rust preventive, which they have thoroughly tested. It is a clean, light colored compound which will not grow rancid, is impervious to the atmosphere and salt water, and can easily be applied with a brush. The manufacturers claim that machinery, tools, agricultural implements, stoves, &c., when treated with this slush may be exposed to the severest weather, shipped to foreign countries or packed away indefinitely without rusting. It is put up in pails holding 10 and 25 pounds, kegs of 50 and 100 pounds, and in half barrels and barrels, and is made in different grades and consistencies to meet all requirements, from the finest tools to the simplest castings.

By a peculiar accident the flushing tunnel pumping station which purifies the Milwaukee River with water from Lake Michigan has been out of commission for two weeks. When the intake leading from the lake to the tunnel was completed some 14 years ago heavy planks were placed over the swift running water, and eventually the planks were covered with earth and sod, and of late years this grass plot has been part of a very pretty park surrounding the pumping station. Two weeks ago, and fortunately at night, the entire covering gave way, and was carried with a rush against the 12-foot turbine wheel, which at once became clogged. Investigation developed no break in the wheel, and the work of clearing out the *débris* from the intake is being pushed rapidly.

The Smith Pneumatic Clutch Pulley.

A pneumatic clutch device or momentum absorber for relieving the shock on an electric motor or other means of power when starting under load has recently been patented by William R. Smith, 730 Ellicott square, Buffalo, N. Y. The device is placed in the interior of the shaft pulley, as shown in the half-tone, Fig. 1. A detail of its construction is given in Fig. 2. The object of the device is to allow the shaft or pulley, as the case may be, according to which is the driven member, to get a slight start before the load is taken up. It is accomplished by having the shaft and pulley connected through cylinders and pistons instead of rigidly, so that each can move to a certain extent independently of the other.

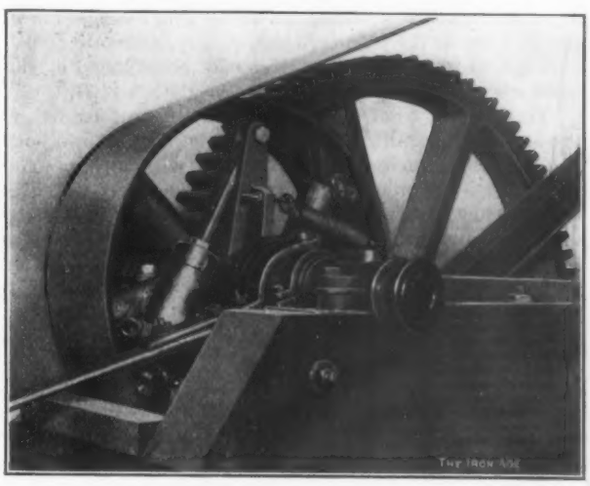


Fig. 1.—The Device as it Appears in Use.

As shown in Fig. 2, the mechanism consists of two pulley arms or levers which are clamped to the shaft and connected at their outer ends to piston rods working in cylinders which are pivotally attached at their opposite ends to the rim of the pulley. When the motor is started the plungers are forced into the air cylinders, and the latter, being provided with small vents, cushion the application of the power, decreasing the jar of starting, and thus relieving the motor. It is stated that a pull of one pound on the lever arm in starting is sufficient to throw into operation a device of the largest size. After the strain is taken up the plungers are automatically returned to their initial position by means of springs connecting the levers with the rim in a manner to oppose the first starting movement. The sectional view at the right in Fig. 2 shows a positive clutch on the shaft which engages the hub of the levers to set the pulley in motion. The hubs of both the pulley and the levers are mounted loosely on a quill surrounding the driving shaft, and are prevented from being displaced endwise by means of collars fast to the shaft. The mechanism also has the effect of equalizing any sudden fluctuations in the load or drive during continued operation.

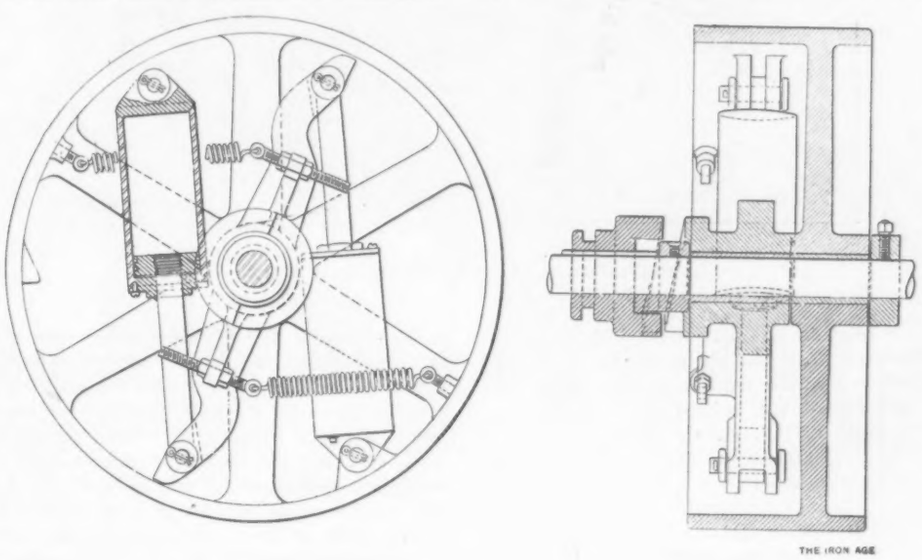


Fig. 2.—Detail of the Smith Clutch Pulley with Pneumatic Momentum Absorber.

When a motor is started in the ordinary manner much more power is required for the initial revolution to overcome the inertia of rest of the machinery than is required after it is up to normal speed. Where this device is used it is claimed that less power is required in starting, thus making it possible to use a smaller motor than would otherwise be necessary.

The vent in the air cylinder may be regulated so as to allow the motor to make one or more revolutions before the full load is taken up. The device is simple and inexpensive to construct and, as its parts are not likely to get out of order and there are no parts requiring oiling, it is cheap to maintain. Several of these clutches have been in operation for the past six months in the factory of the Buffalo Leather Company for driving large revolving washers and tannery wheels, and have demonstrated their utility in the saving of power. A field where the clutch should prove of value is in connection with the driving of heavy motor driven machines, such as reversible rolling mill tables, large planers, &c., or wherever quick starting of machinery causes serious sparking of the motor. It is suggested that its application to electric cars, in addition to reducing the sparking, would decrease the objectionable jerking of the car when starting. For the same reason it should increase the life of the gears. A company is now being formed, and a factory will be erected at Buffalo for the extensive manufacture of these clutches.

Large Ore Movement.—Records for the movement of ore over the Bessemer & Lake Erie Railroad, controlled by the Carnegie Steel Company, were broken during August, topping the high record established in July. Up to noon of August 31 there had been loaded at the docks at Conneaut 646,063 tons of ore, eclipsing the July record of 637,000 tons by 19,000 tons. Additional motive power had to be secured from the Pittsburgh & Lake Erie and the Pennsylvania railroads to move the 354 solid trains of ore, each train averaging 1775 tons of ore, from Conneaut to the Carnegie furnaces.

At Pittsburgh an involuntary petition in bankruptcy has been filed against the Pittsburgh Cornice & Skylight Company of Allegheny by the Rasner & Dinger Company, the Iron City Metal Ceiling Company and the Graff Company, all of Pittsburgh. Claims amounting to $543.50 were filed by these creditors.

An Improved Expansion Steam Trap.

A new steam trap has been invented by Frederick A. Waldron, consulting engineer, of Stamford, Conn., which has the advantage of the ordinary expansion trap when working under pressure, and also the advantage of the pot trap of discharging the full area of the pipe when there is no pressure on the line. The principal drawback of all expansion traps has been the tendency for dirt or sediment to accumulate on the valve seat, causing them to leak and become inoperative and wasteful. By the use of a piston valve and a removable strainer the action of this trap is made positive, and it is independent of the action of springs. The continual movement of the valve keeps the surface ahead of it free of dirt and scale, and erosion is very greatly reduced by its mechanical construction as well as the metal from which it is made. The trap is designed to work under all pressures and is also arranged so that it may be used on a vacuum heating system if so desired.

The accompanying Fig. 1 shows the external appearance of the trap and the manner of setting it up, and

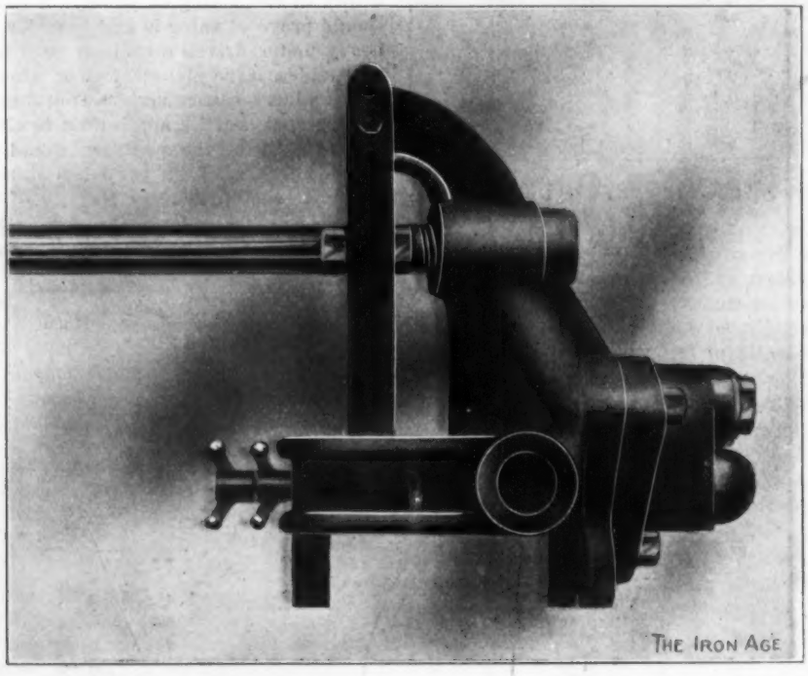


Fig. 1.—An Improved Expansion Steam Trap.

Fig. 2 shows the same in section. Referring to the latter, A is a changeable fulcrum pin arranged to be used in the upper hole where the trap is used on high pressures and in the lowest hole where used on very low pressures. The ratio of leverage is 1.54 and 2.92, respectively, for the two extreme positions of the pin. The lever B is bifurcated to straddle a ¾-inch brass pipe 45 inches long, which conveys the steam and water, and is made up with a tight screwed joint into the main casting C. The other end is threaded for attaching to the pipe to be drained. Parallel with the brass pipe are two ½-inch wrought iron rods, which are rigidly secured at one end to a collar clamped to the pipe and are adjustably connected at the other end to the lever B. These being unexposed to the heat of the steam retain a practically constant length, while the brass pipe expands or contracts with changes in temperature, according to the amount of condensation in the pipe, giving a movement to the lever B, the lower end of which is connected with the piston valve. The cylindrical strainer D is interposed in the passage of the steam before it reaches the valve. The ease with which this may be removed for cleaning is clearly indicated in the figure.

Strictly speaking there are two valves, a positive valve, E, of piston form, and a secondary valve, F, which slides on the piston and has a conical seat. Under operating conditions the positive valve opens and closes a very minute distance, depending on the temperature of the water and steam in the brass pipe, and instead of discharging intermittently, as the ordinary trap does under constant conditions of condensation, the trap regulates itself to a point where a stream of a certain size flows continuously from it. If the stream is shut off from the main and the trap is attached to a pocket, the valves controlling which begin to leak, the entire condensation at this point is cared for by the full opening of a ¾-inch pipe, as the secondary valve opens after the temperature of the brass pipe has fallen to 150 degrees or lower. This is a very important feature, as there can be no water remaining in the trap, or in the pipe to which it it attached, to freeze during cold weather. The valves may be adjusted by the hand wheel G, and locked when set by the wheel H.

Three positions of the valve under different conditions are shown in Fig. 3. The section at the right shows both valves closed when the pipe is filled with steam. The next section shows only the positive valve open, which is the ordinary position when the trap is working under the constant conditions for which it is set. At this state the secondary valve is held closed by the steam back of it, and also by the direction which the steam takes in passing through the ports leading to the positive valve. The left hand section shows the position taken when from some cause a superabundance of condensation exists in the pipe. The positive valve having opened as far as it will, the rod comes in contact with a stop in the secondary valve and forces the latter from its seat. As soon as the extra amount of condensation blows out the temperature of the pipe increases, the rod recedes and the secondary valve is automatically seated again by the pressure of the steam. Ordinarily the secondary valve does not open except when the line is dead, and then it is wide open and in readiness to relieve the line of the large amount of condensation that occurs when the steam is turned into the cold mains.

The materials from which the trap is made have been carefully chosen. The valves and seats are made of noncorrosive steam metal, the strainer and valve chamber of bronze and the frame of close grained cast iron. The expansion element is made of extra heavy brass pipe (for pressures of 100 pounds and above), and all surfaces likely to be injured by rust are made of noncorrosive metal. These traps have been in continuous and successful operation on pressures varying from 10 to 160 pounds. They have not as yet been placed on the market, hence are not competitors of existing makes, although it is understood that they can be obtained from the inventor.

At present they are made in only the one size, ¾ inch, but if a greater discharge capacity is required they can be put on the end of the steam pipe in batteries of two or more. The trap is one that is admirably adapted for boiler or engine tests, where two stop valves are used and the space between them is to be drained.

The Ellwood Power Company.—The plant of the Ellwood Power Company, at Ellwood City, Pa., has several times been mentioned in *The Iron Age*. The large power house and dam on the Connoquenessing River was completed over a year ago and one of the turbine wheels was then set at work to pump the water for the Ellwood City Water Works. The plant recently secured the contract for lighting the streets of Ellwood City, or, to be more exact, for supplying the power for this purpose, as the borough owns the lighting system, and the Power Company sells the power to operate this system to the municipality. The Standard Engineering Works in Ellwood City have concluded a contract with the Power Company which will make that plant a large user, and an 8-mile transmission line has just been completed by the Power Company to West Pittsburgh. The Garland Nut & Rivet Works, the Armorite Safety Conduit Works and the Woodhouse, Bopp & Co. silk mills at West Pittsburgh will hereafter be operated by power generated at the Ellwood dam. These plants are now operated by electric motors, which are driven from a large central power house, using steam boilers. The current will be brought into this power house on the line from Ellwood City at 10,000 volts, and will be transformed to about 110 volts. The transformers, seven in number, are not installed yet. The Ellwood power plant is owned by the Pittsburgh company, of which H. W. Hartman of Pittsburgh is president, and it is the only important plant using water power to generate electric energy in Western Pennsylvania.

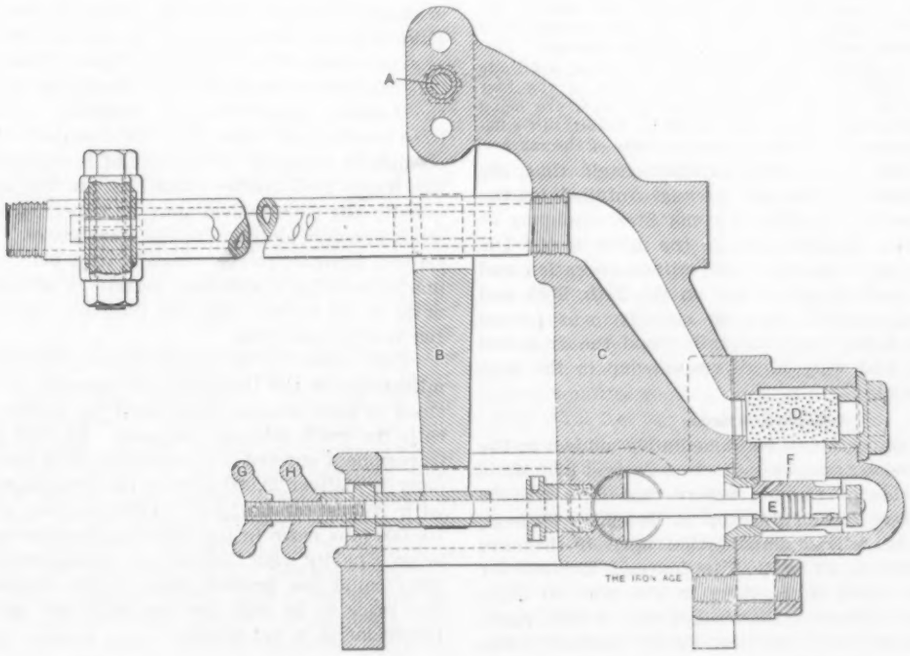


Fig. 2.—Cross Section of the Trap.

The Safety Armorite Conduit Company of Pittsburgh has brought suit against the Clifton Mfg. Company of Buffalo for alleged infringement of patent. The Clifton Mfg. Company is a manufacturer of metal tubing, and the plaintiff claims is using the Garland method of treating metal pipes covered by patents controlled by complainant, which asks for a permanent injunction and an accounting.

For the electrical supply of the city of Iyo, Japan, a hydraulic power plant has been installed on the river Ishite, which includes, as a noteworthy feature, a semi-cylindrical steel flume with a diameter of 45 feet. A stone weir, 132 feet long, diverts the water and raises the level four feet. For a part of the distance between this point and the forebay the semi-circular flume is used, being supported on the side of the cliff by means of wooden sleepers and struts. At the power house a drop of 100 feet is obtained through a steel penstock three feet in diameter and 230 feet long, and a 380 horse-power turbine actuates a 260 kilowatt generator.

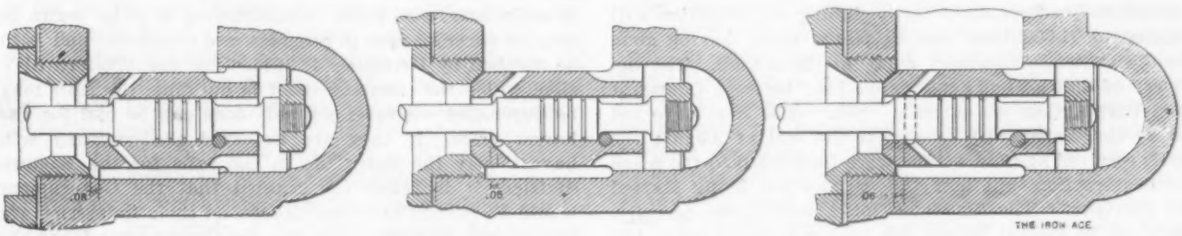


Fig. 3.—Various Positions of the Valves Under Different Conditions.

AN IMPROVED EXPANSION STEAM TRAP.

The American Boiler Manufacturers' Association will meet in sixteenth annual convention at the Southern Hotel, St. Louis, October 4, 5 and 6. J. D. Farasey, Cleveland, Ohio, is secretary.

Canada's Rail Market.

The Tariff.

TORONTO, September 3, 1904.—The authority under which the Dominion Government issued its order in Council establishing a duty on steel rails is contained in Section 1 of an act assented to October 24, 1903, to amend the customs tariff, which section is as follows:

The Governor in Council may, by Order in Council, direct that a duty of $7 per ton shall be imposed under schedule A to the Customs Tariff, 1897, on all iron and steel railway bars or rails, in any form for railways, imported into Canada; and from and after the publication of such order in *The Canada Gazette*, such duty shall be levied, collected and paid on all such rails; and, thereafter, item 238 in the said schedule, and item 585 in schedule B to the said act, shall be repealed: Provided, however, that such order shall not be passed until the Governor in Council is satisfied that steel rails of the best quality, suitable for the use of Canadian railways, are being manufactured in Canada, from steel made in Canada, in sufficient quantity to meet the ordinary requirements of the market.

Evidently the Government satisfied itself that the requirement stated in the proviso was fulfilled by the character of the output of the Algoma Steel Company at Sault Ste. Marie. Experts sent to the mills by the Department of Finance inspected the mill in operation and examined the product turned out on the 24th, 25th and 26th ult. They reported that the capacity was proved to be 500 tons a day, that the rails stood the drop and chemical tests, and were in all respects up to the high standard required.

Deferred Effect.

Not all rail imports will be immediately subject to the new $7 duty, which came into effect on August 27. Rails purchased outside of Canada before that date will be permitted to enter free of duty up to November 30 next, but they will be followed and levied upon if they are not laid by February 28 next. This leaves a loophole for a large import trade to be done in the next 90 days. Whether upon information that leaked out, or with merely lucky foresight, the Canadian Pacific Railway Company completed a contract, a few days before the duty was announced, for the delivery of 60,000 tons of American rails upon its system. These will possibly be landed before the end of November, though probably not laid before the end of February. The road is increasing its issue of common stock by $25,000,000, and with that increase goes the right to issue half as much preferred stock. This money will be spent on extensions and improvements, one item in the programme of expansion being a line from the main road at Sudbury to a point on its Credit Valley division near Toronto.

Other important purchases made in the United States market and elsewhere are in the same stage of delivery. It is said that Mackenzie and Mann's purchases for the Canadian Northern since the beginning of navigation will aggregate 71,000 tons, one 40,000-ton order having gone to the Carnegie Company early in the season. The delivery of that lot has kept vessels busy between Conneaut and Port Arthur all summer. Some 6000 tons have yet to be forwarded. Up to almost the end of August the rails received at Port Arthur were forwarded to the scene of construction, but now the cargoes are being started at that port. The 31,000-ton lot, bought more recently, may all be landed before the harbor is fozen over, but it appears doubtful. The Canadian Northern has mapped out a large scheme of extensions. One line its surveyors are busy upon would parallel the Canadian Pacific Railroad's projected branch from Sudbury to Toronto.

So far as the Grand Trunk Railway Company is concerned, it has been a large buyer, but it is believed to have now in its possession nearly all the rails called for by its contracts.

Government Contracts.

With the present demand of the three chief railway systems thus provided for by foreign rails, the question arises, Where will the Algoma Steel Company find a market for its protected output? It will probably find Government contracts sufficient to keep it busy until the railway companies are again ready to enter the market. For the Ontario Government's Temis Railway line, which is to be extended from New Liskeard to a junction with the Grand Trunk Pacific, more rails will be needed in the very near future, if not immediately. Its last lot of 6000 tons was purchased last December for $25.15 per gross ton, f.o.b. at North Bay. The order went to Cammell, Laird & Co., Limited, of Sheffield, England, who had got one for 9700 tons about nine months before. Of this 6000 tons, the last 2000-ton installment was to be delivered in July last, and practically the whole 6000 tons have been received. Altogether there are about 200 miles to be built, so rails for half the distance have yet to be purchased. Contrary to the statement made in some American newspapers, no rails were bought in the United States market for the road. As the Ontario Government has been the steady friend of the Consolidated Lake Superior enterprises, it is a moral certainty that its next purchase will be from the Algoma Steel Company. It was the Ontario Government's guarantee of the bonds of the Algoma Central Railway Company—a constituent of the Consolidated Lake Superior Company—that made it possible to complete the scheme of reorganization and get the Sault Ste. Marie industries started again. Consequently the Government may be depended on to give as much business as it can to the steel works. In 1903 it offered a contract to the company at a price exceeding the market rate by a sufficient margin to afford a protection of $5 or $6 a ton. But the company could not produce the rails at the time.

Then there is the Intercolonial Railway system, administered by the Dominion Government, which is understood to have already negotiated for 10,000 tons of Sault rails for track relaying purposes. In 1901 the Dominion Government entered into a contract with the Clergue Company to deliver 25,000 tons in the twelvemonth beginning with August of that year, at $32.50 a ton, and to supply 100,000 tons more in the following four years, the price to be on a parity with that current in England, but the company could not produce rails of the required standard. The price to be paid for the rails now ordered for the Intercolonial is not stated.

National Transcontinental Railway.

There is a natural expectation that the rails for the National Transcontinental Railway, for which the legislation was completed in the session of Parliament that rose a few weeks ago, will be of home make. That system, it will be recalled, is divided into two parts—first, the division from Moncton in New Brunswick to Winnipeg in Manitoba, and second, that from Winnipeg to the Pacific coast. The first, called the Eastern division, is to be built and owned by the Government, through a Construction Commission, and it is to be rented to the Grand Trunk Pacific Railway Company, which company is to build and own the remainder of the line, called the Western division, and its branches. There is about 3000 miles of main line to be built. Construction is to be begun as soon as surveys, now in progress, are completed and is to be finished by December 1, 1911. For the Western division, which the company itself is building, the rails may be purchased wherever suitable ones can be had for the lowest price. If they are imported the company will have to pay the duty. As to the rails for the Eastern division, it is taken for granted that the Government would be partial to home makers, as their industries are its peculiar protégés. But can the Government favor the home producers? For an answer to that question reference must be made to the law providing for the railway. The Eastern division, built by the Government, is to be leased to the Grand Trunk Pacific Railway Company, which is to pay as rental a yearly percentage on the capital cost of the road. In the agreement between Government and company the latter was careful to get "capital cost" defined as narrowly as possible. One thing not to be reckoned in the capital stock is customs duties on materials that may be imported by the Government for construction. Clause 17 of the agreement covers that point. When the agreement embodied in the legislation proposed was introduced into the House it was pointed out that this clause practically deprived Canadian rail makers of the benefit of any customs duty that might be imposed. To meet this objection the Government inserted in the National Transcontinental Railway bill a section explanatory of clause 17 of the embodied agreement. This

section (33) defines the expression "direct importation by the Government" in the clause as referring merely to such importations as the Government may bring in for betterments. It proceeds:

> Material or supplies otherwise required for, or entering into, the construction or betterment of the said railway were not intended to be, and shall not be, exempt from the customs duties ordinarily payable upon imported material or supplies of the same class; and the customs duties thereon when they are imported shall be included in estimating the cost of construction on the capital of construction account under the agreement.

The weak point in this section is that it calls for the inclusion of only such duties as are "ordinarily payable." On goods imported by the Government duties are not ordinarily payable, in fact, are never payable. Item 450 of the tariff provides that "articles imported by, or for the use of, the Dominion Government, or of any of the departments thereof," shall be admitted free of duty. All imported material and equipment for that other national, or government owned, road, the Intercolonial, come in duty free. And, as a matter of fact, the Government cannot pay duty to itself so as to have any effect. If locomotives are imported by the Department of Railways, or bridge material by the Department of Public Works, or rails by the Transcontinental Railway Commission, these branches of the Government could simply transfer to another branch, the Customs Department, the amount of the duty. But, as has been said, the tariff, no item of which was repealed or modified by the National Transcontinental Railway Act, makes all Government imports free. Hence, as two very eminent Canadian counsel have stated, in an opinion obtained from them, it would appear that nothing could be charged to the capital cost of the Eastern division on account of customs duty. The lessee company would be upheld in a refusal to pay the percentage on any portion of the capital made up by charges for duty. The Government's imported rails, &c., are perfectly exempt. Therefore, it cannot charge to capital more for rails than the rails can be laid down at in the most open competition. If that is so, the rail orders of the Eastern division of the National Transcontinental Railway will not be more profitable for Canadian than for foreign makers. To favor home makers, the Government might pay a premium above the price at which rails could be bought elsewhere. But this difference will not be allowed to swell the capital on which the railway company is to pay interest. Then it would have to be accounted for as bounty to the rail makers, and the Government would scarcely venture to increase the public liability for the road by any such addition. It looks as if the rails would have to be bought at the open market price.

As to rails for the Western division—from Winnipeg to the Pacific—and its branches, the Grand Trunk Pacific, which is to build and own that, will have to pay the duty. That division is to be begun without delay. If Canadian mills can turn out the kind of rails required they ought to get the contracts, for they have adequate protection now.

The Duties.

Seven dollars a ton is now the basic duty. That is the lowest rate at which rails from the United States can be admitted. Two-thirds of that rate, namely $4.63 2-3, is the lowest duty on British rails, one-third being deducted for the preference. On German rails one-third of the regular duty must be added for the surtax, making the lowest rate $9.33 1-3. Thus the minimum duties against the three chief rail producing countries that have done business in this market are:

For	Per ton.
Germany	$9.33⅓
The United States	7.00
Great Britain	4.66⅔

All these countries have sold here at prices much below those ruling in their own markets, the difference between the domestic and the export prices in the United States amounting to about as much as the regular Canadian duty. So there has to be an increment for "dumping" as provided by the special duty section added to the tariff in June. In most cases, at all events in the case of the United States, the full 50 per cent. of the regular duty would have to be added as penalty. So the possible duties against the three countries mentioned are as follows:

	Per ton.
Germany	$14.00
The United States	10.50
Britain	7.00

These rates should suffice to bar out competition.

Britain has an advantage over her competitors. Before she had not, as the rails of all were equally free here. It remains to be seen whether she can sell as many rails as she did before. If she has better terms than her foreign rivals have, she has worse terms than her Canadian rivals have. Germany is put quite out of the business.

It is to be remarked that the duty on light rails (those not exceeding 45 pounds to the yard) has been diminished, for the new tariff provision repeals item 238, which made the duty on such rails 30 per cent. ad valorem. Thirty per cent. on the market home value of about $28 per ton is a larger duty than $7 a ton is. The difference will be of some advantage to operators of tramways.

Bounties.

There is the further advantage of the Government bounties in favor of home makers. Though much of the ore required to make the best steel rails has at present to be imported, this does not disqualify the makers to draw bounty on the constituent material, both in the pig iron and in the steel billet stages. On June 30, 1907, these bounties come to an end. As originally fixed they were $3 a ton for pig iron and $3 a ton for steel billets for so much of these as should be the product of Canadian ore, and $2 for so much of these respective materials as should be the product of imported ore. In the twelvemonth ending with June last the bounties were 90 per cent. of this rate. In the current twelvemonth they are 75 per cent., so on every ton of pig iron the Sault makes from American ore it now is entitled to $1.50, and an equal sum on every ton of steel, or $3 altogether on both. As there will be an element of Helen ore in the rails, the bounty will be increased, and in the greater ratio of 75 per cent. of $3 a ton, which is the rate for the product of domestic ore.

Prospects.

Unless the market demand has been stated for the time being, the Sault Ste. Marie mill ought to be able to make money. It is difficult for any one outside of it to say more about the promise of the enterprise. We know that the Dominion Government was sanguine of its success in 1901, and that the Minister of Railways of that day had the strong backing of his colleagues in putting through the contract that proved so unfruitful. That was on the eve of a general election. The country now seems to be on the eve of another, and the Provincial general elections also cannot be far off. Possibly there will soon be a bye-election for the Provincial Assembly in the constituency to which the town of Sault Ste. Marie belongs. When there was a bye-election there last winter some of the works were started for a brief moment, undoubtedly to influence the voters who depended on the local industries for wages. The Sault enterprises have been pulled into politics more than once. In the last session of the Provincial Legislature it was decided by an extremely narrow vote that the Ontario Government should befriend the system by guaranteeing $2,000,000 of the Algoma Central Railway bonds. There were aspects of the transaction which made a bad impression on men of independent mind. It is hoped that no false stand has been made this time. The rails made by the mill did not stand the test of either the Government inspectors or those of the Canadian Northern Railway Company. What it is now making, however, is the product of more suitable ore.

Thomas J. Drummond, one of the directors of the company, says that the inspection of the rails preparatory to the declaration of the duty was done by R. W. Hunt & Co. of Chicago, who were employed by the Government for the purpose.

He says, also, that the company will use a good admixture of charcoal pig iron.

The ore, it is said, will come from the Mesaba deposits for the most part. M. A. Hanna & Co. of Buffalo are reported to have the contract for supplying it.

Collingwood Schreiber, who paid a visit of inspection to Sault Ste. Marie for the Government, went to see the works. He says that the output was then 200 tons per day.

Rails from Sydney.

The announcement of the duty gives satisfaction to the Dominion Iron & Steel Company. There had been a meeting of directors in Montreal a fortnight before, and at its conclusion it was given out that the rail mill would be ready to turn out 500 tons a day by the beginning of 1905.

With the company's rod mill and rail mill in operation there should be no more exportation of its pig iron or steel billets.

Effect on Railways.

No doubt the duty will enhance the cost of railway construction, and consideration of that effect was what kept the Government from adopting it before. But the railways have been liberally assisted by cash subsidies, land subsidies, &c., from the Dominion Government, as well as from some of the Provincial Governments. Some of those recently subsidized are required, however, to buy their rails in Canada, if they are to be obtained there in the requisite quantity and quality.

Speaking of the duty, Sir Thomas Shaughnessy, president of the Canadian Pacific Railway Company, said:

I am and have always been in favor of protecting our own industries, provided they are able to meet the demands of the market. I am in favor of protecting the manufacturers of steel rails, even should it cost the railways a reasonable amount more for their supplies. But before we give protection we should be sure that the Canadian mills can fill contracts on time and produce rails of necessary standard quality. If the Canadian mills are not able to do that, then the tariff is for revenue only, and as such it is an unjust burden on the railways.

C. A. C. J.

Lake Ore News.

DULUTH, MINN., September 3, 1904.—One local operator has sold all his output for the rest or this year at $3.25 a ton, another has placed 150,000 tons at the same figure, the last being an ore guaranteed at 62 iron and 0.035 phosphorus. Other sales at better figures than formerly are currently reported. There is a slight improvement in the demand for ore properties, and some Eastern furnacemen have been looking over explorations with the view of buying them. One explored mine, containing about 5,000,000 tons of iron running 57 per cent. and better, has been put under option recently for a considerable bonus above the royalty. The price is not, to be sure, as good as could have been secured a year ago, but that there is any inquiry at all for these ores is a very encouraging symptom. Two or three deals of this nature are pending on the Mesaba range. Some exploration goes on. Indeed, among those who have been able to continue there has been far less cessation of exploratory activity during the past eight or ten months than might have been expected. The large steel making concerns stopped work as soon as times grew dull in the sale of their products. The necessity of making a showing of earnings led them to cut off all expense that was not considered indispensable. Many speculative explorers were forced by the requirements of their exchequer to cease work. The largest individual jobs on the Mesaba, Vermillion and Marquette ranges have not been interrupted. Some of these are meeting with success, and will soon be in position to reap the reward to which their persistence has entitled them.

The Stevenson Mine.

One of the assets of Clairton Steel Company, when it was purchased by the United States Steel Corporation, was a long time contract for Stevenson ore, Mesaba range, at a low price. This contract carried a maximum of 242,000 tons a year. Now the Steel Corporation has asked if it can have double the maximum this season. This will increase Stevenson shipments to a large extent: how much cannot be told, for it may be impossible for the operators to move the maximum demand. It may make that mine a producer of 1,500,000 tons this year. The story goes, though without confirmation and not from official sources, that one reason for this large demand this year is the belief that more Stevenson ore has been sold on long time contracts than there is in the mine, and that the corporation wished to make sure of its share. This belief is probably not well founded. A few years ago Stevenson was measured up for about 12,000,000 tons, but more ore has been found since, I take it. The story is current among mining people and is given for what it is worth. The fraternity will be exceedingly glad when Stevenson is through dumping an enormous tonnage of cheap ore on the market, for it has had a very demoralizing effect upon prices and the business of others. Top notch shipments from this mine will probably not continue many years, however.

Minnesota ore shipments for the month were 2,545,000 tons, or 50,000 tons better than the corresponding month last year. For the season to September shipments from Minnesota ranges have been almost precisely 4,000,000 tons short. Michigan range shipments are somewhat disappointing, and make the total business for the month about 3,800,000 tons. Gladstone will be idle for the remainder of the season, while Escanaba is not reaching last year's record. Big shippers are doing all they can to turn business into channels where it will return a revenue all along the line, and consequently Conneaut's receipts are growing this season with rapid strides. Considering this and the character of the season there have been few delays and little complaint of demurrage.

The Aitkin and Crow Wing District.

Reports that come from the new district in Aitkin and Crow Wing counties, Minn., where some exploration has been under way for a considerable time, are more encouraging, and ore may be found in merchantable quantity and quality. I hear of one exploration where 40 feet of 60 per cent. ore has been cut with a drill, but this is not to be taken without confirmation. It has been stated recently in print that the United States Steel Corporation holds options on 5000 or 6000 acres, and has lately taken 4000 more to explore, and that in its work holes have shown as much as 160 feet of 54 per cent. ore. This is an error. The Steel Corporation has abandoned its options in that section, and states that it has found considerable quantities of ore running as high as 40 per cent., but little better. Its drills are stored near the field, and work may possibly recommence shortly, but as to that there is no statement. In all the section about Kimberley and Deerwood, Minn., and between the two places, jasper and ferruginous chert bowlders are common in the morainic float. Iron bowlders, some hematite and some manganiferous ore, are found scattered about, but it seems hard to determine whether they have come from considerably further north and east, with the glaciers that covered the region, or have been the product of nearer ledges. Rock outcrops through this section are very meager, consisting of a very few ledges of quartzite and a dyke of diabase; indeed there is in the neighborhood of Kimberley and Deerwood but one cropping of each. In the remainder of the region drift is spread as a universal mantle. The diabase is probably an archæan greenstone. In cuttings for roads and in wells these rocks have been encountered more frequently, and in a general way the course of the greenstone has been traced. It is along this course that explorations have begun. Necessarily with so slight a guide in the rocks exploration will be liable to cover a good deal of ground before the most likely places for work are settled upon. The theory that this field corresponds to both the Gogebic and Mesaba ranges is general, and has prevailed from the time of first exploration there, about two years ago. The succession of rocks is similar to those important ranges, but with the older quartzites lying south of the younger rocks, as in the Gogebic and contrary to the Mesaba. The existence of an elongated Lake Superior basin, of which these two ranges form north and south boundaries, was one ground for the belief that these ranges swung together west of the lake, and that west of the Kimberley and Deerwood deposits there might be a swing about to a connection with the western Mesaba, which has never been traced west from the Mississippi River, and form the western end of this basin. But this may seem to be a rather far fetched hypothesis. All that is now known is that there

are iron bearing rocks in Aitkin County, carrying lean ores and ferruginous slates and cherts. Their extent is not known, their width is a matter of mere conjecture, and it is doubtful if large bodies of merchantable ores are found there. The coming winter will see an increase in exploration to an extent that should by the following summer determine in a general way what may be looked for in the district. D. E W.

Notes from Great Britain.

The Progress of Standardization.

LONDON, August 27, 1904.—The work of the Engineering Standards Committee proceeds apace, the two latest being a report on tramway tubular poles and on copper conductors. The Committee on Tramway Poles have issued only an interim report, in which they observe that the question of standardizing tramway poles, upon which problem the subcommittee have been engaged, has been somewhat more complex than was at first anticipated. At the commencement of their labors the committee, through the courtesy of the manufacturers, obtained figures indicating the general trend of everyday practice with regard to outside diameters, over all lengths of poles and test conditions. These figures were very carefully considered by the subcommittee, and a circular was drafted, in which the views of the members and those of the makers were as far as possible combined. This circular was issued to a number of the leading tramway engineers in the kingdom, resulting in a large majority signifying their adherence to the proposals put forward by the subcommittee. Having now the views of both users and makers before them, the subcommittee proceeded to draft a standard specification for tramway poles. Before, however, finally adopting it, it was thought advisable that the manufacturers should have a final opportunity of putting forward any suggestions or amendments which they might desire to make. With this object in view, the proposed standard specification was forwarded to the makers, but the replies which were received not being entirely in accord with the proposals, a conference (which was attended by the leading pole makers) was convened at the Institution of Civil Engineers last June. The different questions affecting the standardization of tramway poles were very thoroughly discussed, and the specification was modified in accordance with the views expressed at the conference. A standard specification for tubular tramway poles having now been arrived at as the result of the joint labors of the committee and the makers, it is hoped that, in future, the standards recommended by the committee will be universally adopted by all engineers engaged in designing and installing electrical tramways throughout the British Empire. Although this report is interim, it is final so far as the specification is concerned.

Copper Conductors.

The second report, on standard tables for copper conductors and thicknesses of dielectric, was issued this week. The tables have been drawn up by an official subcommittee, who, in their report, give a short *résumé* of the general situation. Existing standards for copper conductors and thicknesses of dielectric have been carefully revised, and the accepted standards of the Cable Makers' Association were largely used as a basis for dielectrics. The report is final, so far as the tables are concerned, and only an interim report of the Engineering Standards Committee as a whole, until such time as the final report, combining all specifications of the committee, is issued. As the matter may prove of considerable interest to American engineers, who are doing an increasingly large trade with this country, it may be well to set out the report, which is, fortunately, a short one, *in extenso:*

1. *Resolved*, That a wire 1 m. long, weighing 1 gram, and having a resistance of 0.1539 standard ohm at 60 degrees F. (15.6 degrees C.), be taken as the Engineering Standards Committee (E. S. C.) standard for hard drawn high conductivity commercial copper.

2. *Resolved*, That hard drawn copper be defined as that which will not elongate more than 1 per cent. without fracture.

3. *Resolved*, That a wire 1 m. long, weighing 1 gram, and having a resistance of 0.1508 standard ohm at 60 degrees F. (15.6 degrees C.), be taken as the Engineering Standards Committee (E. S. C.) standard for annealed high conductivity commercial copper.

4. *Resolved*, That copper be taken as weighing 555 pounds per cubic foot (8.89 grams per cubic centimeter) at 60 degrees F. (15.6 degrees C.), which gives a specific gravity of 8.90.

5. *Resolved*, That the average temperature coefficient of 0.00238 per degree F. (0.00428 per degree C.) be adopted for commercial purposes.

6. *Resolved*, That 2 per cent. variation from the adopted standard of resistance be allowed in all conductors.

7. *Resolved*, That 2 per cent. variation from the adopted standard of weight be allowed in all conductors.

8. *Resolved*, That an allowance of 1 per cent. increased resistance, as calculated from the diameter, be allowed on all tinned copper conductors between diameters 0.104 and 0.028 (Nos. 12 and 28 S. W. G.), inclusive.

9. *Resolved*, That for the purposes of calculation of tables, a lay involving an increase of 2 per cent. in each wire, except the center wire, for the total length of the cable be taken as the standard.

10. *Resolved*, That the legal standard wire gauge, as fixed by Order in Council dated August 23, 1883, be adopted as the standard for all wires.

Profits and Dividends.

A number of important dividend reports are to hand this week. The Bolckow Vaughan report is interesting, as showing the large new capital outlay of this up to date concern. The total expenditure upon new collieries, new blast furnace plant, electric installations, machinery and extension during the year was £463,239, and of this sum £326,717 was for outlay upon the new collieries at Ferryhill and Leasing Thorne, and the new blast furnace plant at the Cleveland Iron Works. The balance of £136,522, expended on the other items, it was proposed to write off by appropriations of £100,000 from the reserve fund and £36,522 from the year's profits. The profit from all sources available for distribution, aft r providing for depreciation, is £199,641, which, with the added balance of £45,990 brought forward, it is proposed to distribute as follows: For payment of dividend on preference shares, £23,604; for payment of dividend on 1,629,760 fully paid shares, at 5 per cent. per annum, being 1s. per share, of which 6d. interim dividend has been paid, £81,488; for payment of dividend on 1,860,900 shares, with 12s. paid at 5 per cent., being 7.2d. per share, of which 3.6d. in interim dividend has been paid, £55,827; for payment on extension, new plant, &c., £36,522; balance carried forward, £48,190.

The annual report of Mather & Platt, the great Salford engineers, has also been issued this week. The accounts show that the net profit for the year was £115,178, which, with the addition of £10,209, brought from last year's account, gave an available total of £125,388. The preference dividend, paid six months ago, absorbed £9,687, so that now a sum of £115,701 was left for disposal. This sum is appropriated as follows: Dividend of 5 per cent. for the half year on the preference shares, £10,000; dividend of 7 per cent. on the ordinary shares for the year, £28,000; bonus of 3 per cent. on the ordinary shares, £12,000; transfer to reserve account (bringing up the amount to £200,000), £50,000; carried forward to next account, £15,701.

The Moss Bay Iron & Steel Company of Workington reports a profit for the year of £25,482. Last year the ordinary shareholders received 5 per cent. for the year; 1901-2 the distribution was 4 per cent. and for 1900-01, 3 per cent., as at present. For the three years previous the dividend was 2½ per cent., and up to June, 1897, only the preference dividend was paid.

Even more important than the foregoing is the report of Guest, Keen & Nettlefolds, whose balance sheets show a net profit of £404,022, which was the amount brought forward last year leaves a balance for distribution of £541,120. Deducting the amount for debenture interest for the 12 months and the interim dividend on

the preference and ordinary shares, there remains a sum of £379,319. A dividend is paid on the ordinary shares of 10 per cent. At the annual meeting of this company the chair was taken by Arthur Keen, and whatever this gentleman says on these occasions is of wider interest than to merely his own company. Taking a general view of his firm's prospects, he remarked that the result of trading companies, especially those engaged in the iron and steel trade, were being very closely followed, and many reasons had been put forward as to how they had been able to maintain their position. The answer was simple. They consisted of the amalgamation of three successful businesses, and one of the chief objects which they had in view was that in bad times they should help each other. This had been the case this year. These businesses, when they were amalgamated, were capitalized at a figure upon which they believed they would be able to pay a fair and reasonable dividend. Events so far showed they were correct. Further, since the formation of the present company the directors had recommended to the shareholders a policy of prudence which he was glad to say they had accepted. This had given increased security to their position. They were engaged in many trades. He might instance that in Cardiff they could see the iron ore from the Spanish property in which they had a considerable interest being unloaded, and they could see the steel made from the same ore being drawn down into wire for endless purposes at the Imperial Mills at Newport. The result of this working in and out of the various departments was that in most they had maintained their outputs; in some they had exceeded those of last year, although to do this they had had to take reduced prices. They had, however, by the management and co-operation of the entire staff, reduced costs so as to give very nearly the same result as last year. So far he was pleased to say they had not had to ask their work people for any serious reductions in wages—in some departments they certainly ought to have had greater reductions than they had; in others the wages were governed by the selling price. The total amount paid in wages during the year was over £1,250,000. This was in excess of what was paid last year.

Workmen's Dissatisfaction with Pneumatic Tools.

The Government employees at Chatham complain that pneumatic tools are detrimental to the health of the workers, some of whom become physical wrecks, the muscles of the arm becoming seriously affected, while the hearing is destroyed by the great noise. It is admitted that there is considerable truth in these contentions, but it is affirmed that there is an ulterior motive in bringing the subject up at the present time. On this point the *Engineer* remarks:

"The question of piecework prices for pneumatic work is at present under consideration, and we are possibly correct in believing that this discussion is to be regarded as a diplomatic move on the part of the men, who obviously are likely to receive higher wages if they can prove such work to be particularly onerous. No one who has any experience of the use of pneumatic tools can deny that it has objectionable features; the vibration and the noise when chipping or caulking tools are used on hollow structures are very considerable. The former is being reduced by improvement in the design of the tools, and its effect on the men may be greatly modified by training the muscles gradually to withstand the peculiar action. If a man is put suddenly onto the use of the pneumatic hammer for many hours at a time he will suffer severely, but if he accustoms himself to its use by slow degrees he will feel no ill effect. The question of the noise is less easy of solution, and good may possibly result from attention being directed to it. In conclusion, it may be remarked that, while pneumatic tools have been in use all over the country for many years, no serious action has ever been taken against them by the men."

The British Westinghouse Company.

The British Westinghouse Company is not having a precisely happy time of it, but taking a broad view of the situation, it is more than probable that the company will work through to a successful issue. It must be remembered that the formation of the British company was something of an experiment, made with the view of interesting British capital in the undertaking and enabling the Westinghouse patents to be exploited in this country, and so to avoid prejudice against foreign manufactures. The company was started upon a comparatively modest scale, with an issued capital of £500,000 in preference shares and £500,000 in ordinary shares, the latter being issued to the American company in payment for the company's English business and for a guarantee of the preference interest for two years. This recapitulation is necessary to explain the support accorded by the Westinghouse Electric & Mfg. Company of Pittsburgh to the British Westinghouse Company. The original capital of the latter company soon proved totally inadequate, and it has been gradually increased until it now reaches, or will shortly reach, £4,250,000. Until comparatively recently the company enjoyed very good credit in this country. At one time last year the £5 preference shares stood at 6¼, and the 4 per cent. debenture stock at 104, and while its stocks commanded anything like those prices, it was perfectly feasible to raise additional capital here and some preference shares were issued and readily subscribed at 10 per cent. premium.

George Westinghouse, in a circular issued last week, in which particulars of the position of the various companies are given, says that further capital required was not raised in England, because of the difficulty of finding a market for industrial securities of any character, owing to the general depression in trade. But as things are, the British investor is hardly likely, except as a lock up, to invest in the company.

Before the last annual report was issued it became known that the company was short of funds, and when the accounts were published it was found that the company had borrowed £141,000 as a temporary loan and was indebted to sundry creditors to the extent of £540,000, although its debts had been reduced by about £60,000 through the American Company allowing special discounts to that amount. It is true that the company had a cash balance of £123,000, but of this £46,000 had to be distributed in dividend upon the preference shares. Of course the particular contracts undertaken by the company involved an enormous strain upon its capital resources. It sometimes takes very big contracts and secures them by not demanding payment in cash, but accepting itself the responsibility of placing the new securities for the companies for whom it works. The case of the Mersey Railway may be taken as an example. That property had been doing very badly as a steam railroad and would have found it difficult to raise the money for its electrification. The Westinghouse Company undertakes the contract and further undertakes to supply a considerable sum of cash, taking in return a very large amount of debenture stock. The directors of the Westinghouse Company believed that electrification would convert the Mersey Railway from a failure to a success, and so stood by the improvement in the credit of the railway company to make its legitimate profit on the work done and a profit on placing the debenture stock. Naturally contracts of this character place a tremendous strain upon the cash resources of the British Westinghouse Company and for a time render constant additions to its capital necessary, but in the course of a few years the pressure should be relieved, if the business undertaken is sound, by the opportunity arising to place the securities received under the earlier contracts.

The company made a profit last year of £107,600 only, and this would have been £60,000 less but for the discount voluntarily allowed by the American Company, which discount alone made it possible to meet the preference dividend. No interim dividend was paid this year, and the chairman said at the last meeting that there was a loss on the first quarter's working, but the statement published this week showed the company to possess a surplus of £83,000 at April 30. Something more than £80,000 profit must, therefore, have been made in the six months ending that date, or at the rate of at least £160,000 a year. The shareholders cannot look to receive their full dividend at present upon the preference shares, but there should be some return upon them, and with the prospects before the company and the assured support of the pros-

perous American undertaking, the preference shares look like a promising lock up at the present price of £3 per share.

Iron Ore Possibilities in India.

The efforts for the development of the natural resources of India, in the way of development of the iron industry, have received a check. At the instance of Sir Ernest Cassel, eminent experts have investigated the commercial possibilities of the iron ores of the Jabalpur district. Their report, which is now made public, is unfavorable. Iron ore exists in large quantities, but it is not suitable for blast furnaces. In the Agria Hill alone, 10 miles from the Sihora road station of the East Indian Railway, there are estimated to be 14,000,000 tons of ore, while at Jauli there are also large deposits. The experts hold, however, that not only are the ores unfit for blast furnaces, but that their phosphorus contents are too high to allow them to be used for the manufacture of steel by the acid process. India must, therefore, await the day when science will invent an improved process for treating friable or soft ores. On the other hand, the investigations conducted by the late J. N. Tata, the famous Parsee millionaire, into the quality of the ores in the Chanda district are now practically complete, and the reports are believed to be distinctly favorable.

S. H. G.

The Molders at Cincinnati.

CINCINNATI, OHIO, September 5, 1904.—The difficulty between the foundrymen and iron molders has taken a serious turn, and that in the face of all attempts of a peaceable settlement. At a meeting of the molders, held Sunday, it was finally decided to strike, as the foundrymen had refused to accept either of the two propositions presented them. The men agreed to accept the cut of 20 cents a day if a nine-hour day was given them, or in lieu of this, last year's scale was to remain in effect, with a ten-hour day. The foundrymen refused to renew the year's agreement, which expired August 1, and which fixed the scale of wages for a year ahead. On this fact the whole controversy seems to have hinged, as the molders claimed that they had no guarantee that another reduction would not follow in the near future and they must have something definite in the way of a contract. The strike becomes effective on the 6th inst. and will involve in the neighborhood of 400 molders and 12 local foundries, as follows: The Bollman-Wilson Company, Queen City Foundry Company, the I. & E. Greenwald Company, Buckeye Foundry Company, J. Oberhelman Foundry Company, Eberhardt & Sons Company, the Eureka Foundry Company, the Globe Foundry Company, Wessling Brothers, Victor Knecht & Co., the Johaningman Foundry Company and the Newport Iron and Brass Foundry Company. We learn that a committee from the Molders' Union will call on the foundrymen to-morrow and present their demands, after which the foundrymen will confer among themselves, looking toward a solution of the problem that confronts them. While the strike is effective and the men will not work to-morrow, it is sincerely hoped that further arbitration will cause it to be of short duration.

Efficient Centrifugal Mine Pumps.—Series centrifugal pumps electrically driven, it is reported, are much used in Westphalia for pumping from great depths. A 1000 horse-power Sulzer centrifugal pump, running at 1000 revolutions per minute on 5000 volt three phase current, raises 1760 gallons of water per minute to a hight of 1640 feet in one lift, and was stated to give an efficiency of 60 per cent. from the boiler through the pump to the water delivered at the surface. The centrifugal pump and motor occupy an area only 18 feet square, as compared with an area of 80 by 20 feet required by the 1600 horse-power steam pump which it replaced. All the water of the mine was dealt with at the lowest point, the water from the highest levels driving Pelton wheels for endless rope haulages on the lower levels during the descent. Series centrifugal pumps at great depths require large volumes of water to make them effective, and in one place a duplex ram pump is used, running at 75 revolutions, direct coupled to a slow speed motor of 1000 volts, pumping 220 gallons per minute in one lift against a head of 2000 feet. This plant was stated to give an efficiency of 80 per cent. from the steam to the water delivered at the surface. The pump is stopped and started against the 2000 feet head, while under pressure, quickly, and without sparking.

National Metal Trades Association Notes.

The temporary office of the National Metal Trades Association in Chicago, which has been in charge of the secretary, Robert Wuest, for the past three months, has been closed. The association maintains a special representative in Chicago for the sole purpose of looking after the welfare of the men whom it sent there, securing for them such positions as they are best fitted for, and otherwise looking after their interests. As an illustration of this, the secretary reports having made arrangements the last week of his stay for the bringing to Chicago of 17 families.

The National Metal Trades Association has been able to demonstrate more clearly than ever before its sincerity in its promises to look after the welfare of workingmen, securing for them the right of freedom of employment as guaranteed to them by our laws.

All struck shops in Chicago are running full handed and under normal conditions, except for the maintenance by the Machinists' Union of the picket lines. The places of the strikers have been permanently filled by men who have been sent to Chicago by the association. Less than 20 of the 1400 who went on strike have regained their old positions. Many of the strikers have left Chicago, securing positions on the Santa Fé road and in various parts of the country.

The Chicago Metal Trades Association is mailing to the foremen of its members handsomely printed invitations to a foremen's meeting, which will take place at the Sherman House next Friday evening.

The Finance Committee of the association held its regular meeting at the Cincinnati offices Saturday and was much pleased with the healthy financial condition of the association.

The machinists' strike at the National Elevator & Machine Works, Honesdale, Pa., is being handled by the association to the entire satisfaction of W. W. Wood, general manager of the concern. Men have been sent there by the association and the work of the shop is being carried on. In all other places where the association has been handling labor matters strikes have either been declared off or they have reached a stage where they do not interfere with the operation of the shops of the members of the association.

The reports received from the membership of the number of operatives now employed indicate a revival of business in some sections, and a fair inference to be drawn from such reports is that a better condition prevails all over the country in the shops of the members of the National Metal Trades Association, since no appreciable falling off in operatives is noticeable.

The commissioner, W. P. Eagan, has just returned from an extended Eastern tour in the interests of the association. He found a very marked disposition on the part of employers to co-operate with each other and the necessity of organization universally recognized.

Steel Ties at Homestead Steel Works.—For some months past the Carnegie Steel Company has been making railroad steel ties in an experimental way at the Homestead Steel Works. Recently a cheaper method of rolling these ties has been found and the prospects are that the tonnage will be materially increased. The large amount of electric railroad building has proved a good consuming field for the railroad tie. During the coming winter it is expected that the output of steel ties at the Homestead Steel Works will be materially increased.

No. 2 Wharton Furnace at Wharton N. J., was blown in on the 5th inst.

The Iron Age

New York, Thursday, September 8, 1904.

DAVID WILLIAMS COMPANY, - - - - - - - - PUBLISHERS.
CHARLES KIRCHHOFF, - - - - - - - - - EDITOR.
GEO. W. COPE, - - - - - - - - - - ASSOCIATE EDITOR.
RICHARD R. WILLIAMS, - - - - - - - - - HARDWARE EDITOR.

The Control of Prices.

The last few months must have thoroughly dispelled the ideas held by quite a number of producers as well as consumers since the days of magnificent consolidations. They were told, then, that old fashioned convictions with regard to the sway of demand and supply upon prices must be abandoned, that the senseless slaughter of values due to open competition must cease, and that beneficent regulation of prices by controlling interests would end the violent fluctuations which benefited no one but the vile speculator.

The new order of things was put to the test promptly by the boom. The associated pig iron manufacturers of the Birmingham district fought the rise, and simply threw away a very large amount of money without getting any thanks for the heroic deed from any one. An effort was made by the leading interests in nearly all the branches of the finished iron and steel trade to hold down prices to what was considered a safe normal level, the compensation for abstaining from crowding buyers being expected to come in the days of a restricted demand. Unfortunately buyers were crazy enough to pay extravagant premiums over the "official" prices for prompt delivery, and did not even shrink from the crime of importing what they wanted. There can be no doubt whatever that the net earnings for the producers would have been larger if the markets had been allowed to take care of themselves. Sacrifices were made to put into effect a new and virtuous conception of the duties of controlling interests. But if those who carried through the modern conceptions expected to accumulate a credit in the form of gratitude and appreciation on the part of consumers, they were sadly disappointed. There are a certain number of customers among those of every manufacturer who really prefer steady prices, but the great majority of business men have some confidence in themselves as buyers, and rely upon their skill as such to secure advantages over their competitors. These are apt to resent rather than applaud goodness from above, which forces them down to a dead level with every one. It is certain that the efforts of many important interests in different branches of the iron trade, during the late boom, to hold down prices have not been greatly appreciated and have not done much good.

The more recent undertaking to hold prices by main force at that level which the seller regards as normal has been a flat failure. The only possible chance of absolutely controlling prices on a declining market is through complete monopoly. That does not exist in any branch of the steel industry in this country, and even if it did temporarily it would not last long if its power were abused. There is nothing to prevent the establishment of new works, if the capital is available, since the raw material can be obtained, labor is plentiful, and technical and commercial skill is abundant. It is only in a few specialties that patents may stand in the way. While the days of blackmail plants are over, because they have proved dangerous and unprofitable, new works would be quickly established on their merits if prices were held high by temporary monopoly.

As for price agreement associations, pools and what not, their value on a declining market is rather problematical. There are those who hold that a nominal pool is better than an open fight. But as long as our managers worship unreservedly at the shrine of "tonnage," the disposition will be to disregard the pools. It is difficult to escape the conclusion from a study of the developments during the boom and during the subsequent collapse that there is little good to be expected from any high handed, high minded attempt to regulate prices to conform to ideal conditions. The supply must be made to adjust itself to the demand, and prices must continue to fluctuate automatically.

Chicago's Drainage Canal Water Power.

Chicago's Drainage Canal, by means of which the waters of Lake Michigan are made to flow southwestward into the Des Plaines River near Joliet, Ill., has already cost the tax payers of the sanitary district about $45,000,000, and many millions more will have to be expended in constructing a channel from the Calumet region and one from Evanston before Lake Michigan, the source of Chicago's drinking water, is freed from sewage pollution. All this money has come from direct taxation of the people in the Sanitary District or from the sale of bonds to be redeemed from the tax fund. This district is over 257 square miles in area, a little over three-quarters of which is within the Chicago city limits. The population of the district is about 2,200,000, of which about 90 per cent. is in the city proper. Probably 85 per cent. of the taxable valuation is within the city and 15 per cent. outside of the city, but within the limits of the Sanitary District.

The last tax levy authorized was for the purpose of constructing a water power at the lower end of the canal. This levy amounted to ¼ of 1 per cent. of the taxable valuation for three years. About $2,000,000 collected, or to be collected, from this source will be expended in creating a water power near Lockport which will furnish 30,000 electrical horse-power with the present flow and over 50,000 horse-power when the widening of the Chicago River and the construction of the Calumet branch are completed.

What is the drainage district going to do with this water power?

The city of Chicago, through its representatives on the Drainage Board and in a hundred other ways, is endeavoring to secure this power as a gift by vote of the board for its own municipal use, notwithstanding that it has already its own power plants, and in spite of the fact that part of its cost was paid for by taxing people outside of the city limits.

With this power given away, the only means for securing a money return for the expense of the canal will have been lost, and the burden of retiring the $18,000,000 in bonds now outstanding, together with the great cost of maintaining the canal and paying State taxes on its land, will fall on the people in the shape of direct taxation.

Isham Randolph, chief engineer of the district, believes that such a gift of the only money asset of the canal is not only unjust to the minority tax payers, but that it is unwise in a business sense. He points to the fact that the Sanitary District now owns 56 miles of dock front on the best artificial water way ever built, the holdings of the district ranging from 800 feet to 2000 feet in width. This strip of land fronting a water way navigable by the largest lake vessels is an ideal manufacturing area. The ground is high and well drained,

the banks built for the most part of rock. Sanitary conditions for workmen's homes are perfect. Two transcontinental railway systems parallel the canal, and four belt lines, connecting with all roads entering Chicago, cross it. Permit the Canal Commission to sell its electrical power for industrial purposes, and it will at once find a market at high prices for this vast area of manufacturing property. The revenue from the power itself will be sufficient to pay all maintenance cost, and will go a long way toward meeting the cost of retiring the bonds. The sale or lease of the abutting dock property for manufacturing purposes will not only produce a large revenue in itself, but it will make permanently productive land that is now an expense because of State and special taxation. Most important of all, the sale of this electrical power to industries on the bands of the canal at a figure that will attract manufacturers will bring to this district hundreds of solid industries and add to its population tens of thousands of operatives, leading to the establishment of a succession of prosperous industrial towns along both banks of the canal.

It may be said that, inasmuch as Chicago paid for most of the canal, and a gift of the power to Chicago would lower city taxes by reducing the operating cost of municipal power plants, such gift would be only a fair exchange. That would be on a par with a plan by which the majority of the owners of a business would decide that hereafter they, the majority, should have all the profits, leaving to the minority the privilege of continuing to pay its share of the costs. But, aside from this element of unfairness, the gift of the power to Chicago would leave forever undeveloped the unusual industrial resources along the canal route and would necessitate the perpetuation of expensive taxing machinery for the maintenance of the canal. In contrast with this, Mr. Randolph's plan of using the power as a means for securing a steady revenue to the district and as an inducement for the industrialization of the canal territory would in time not only make the canal self supporting, but would pay for extensions and feeders that will become necessary as Chicago grows.

All Meat "Unfair."

As a last stand in a desperate cause long since lost, Donnelly, the president of the Meat Cutters' and Butchers' Union, has issued a manifesto to the effect that on and after a certain date all meat shall be considered "unfair." If we were to read that the Czar of Russia had passed an edict prohibiting his subjects from eating meat in any form, under pain of bodily injury, the whole civilized world would enter a protest before which even the unlimited monarchy of the Slav would have to bend. And yet Donnelly's edict, had he the power back of it that he once thought he had, would amount to the same thing; for, according to the principles of unionism, no button-wearer is permitted to handle or have anything to do with an article that has been declared "unfair." Fortunately for the public, and for unionism itself, there are sane men high in labor union councils who refuse to countenance such actions, and it is doubtful whether the edict will receive more than passing notice among allied unions. Donnelly is defeated, and knows it, and this last intemperate act is understood to be for the purpose of forcing from the packers some sort of a concession that will relieve the strikers from unconditional surrender.

It is doubtless true that many union men were working in packing plants whose pay envelopes each week during the dull season contained too meager an amount to permit a family to live as human beings should; but it is contended by the packers that the unions had only themselves to blame for this condition. They demanded, and received, an hourly wage that compared favorably with workers of the same skill in other crafts, but they compelled the employers to maintain practically as large a working force during the dull season as they required when business was at its best, the consequence being that hours of work had to be greatly cut down.

When the strike is over and the packers are permitted to employ what men they want, and when they want them, with no restrictions on output, it is safe to assume that every man employed will receive a weekly wage that will be in proportion to the service rendered.

A New Tool Steel Company in the West.

Up to the present time no tool steel or crucible steel has been manufactured to speak of for the general trade west of Pittsburgh, although probably the largest demand in the United States comes from the Middle West. It is to supply this demand that the Columbia Tool Steel Company is drawing up extensive plans for a mill to be located at Chicago Heights, Ill. The officers of the company are as follows: E. T. Clarage, president; Frank Matthiessen, vice-president; Alexander Peterson, secretary; M. H. Kilgallen, treasurer.

Mr. Clarage, the president, has been connected with the tool steel industry in Chicago since 1887, having been with the Crescent Steel Company for about eight years, after which he was Western sales manager for the Sanderson Brothers' Steel Company for a period of about six years, or until it was absorbed by the Crucible Steel Company of America, at which time Mr. Clarage was appointed Western sales manager in charge of the sales of the products from its various mills. The stockholders of the company are mostly men of ample means, but the company has started on a moderate scale.

The company has selected a plot of ground 507 x 761 feet and will shortly begin the erection of a modern plant, the main building of which will be 75 x 350 feet, in addition to which a power house and other buildings will be erected. Boilers will be operated by waste heat from the heating furnaces, while the crane, shears and small tools will be driven by motors.

The Hoop Mill Situation at Youngstown.—The situation in the hoop mills of the Carnegie Steel Company, at Girard, Warren and Youngstown, Ohio, is about the same as noted in these columns last week. The Carnegie Steel Company is going steadily ahead filling the mills with competent men in spite of the strong efforts of the strikers to keep men from going into the mills. Last week the business men of Youngstown prepared a petition and submitted it to the officials of the Carnegie Steel Company and the Amalgamated Association, requesting that another conference be held to see if the trouble could not be adjusted. It may be said that the Carnegie Steel Company will not pay any attention to this petition. The Carnegie Steel Company agrees to pay the Amalgamated scale for puddling, the contention being over the very high priced labor. It is expected that within a short time the concern will have secured enough men to put all of the hoop mills at Girard, Warren and Youngstown on double turn.

The Rankin Works of the American Steel & Wire Company, consisting of rod, wire and wire nail mills, started up in full operation last week. The Rankin Works is the largest single plant owned by the American Steel and Wire Company and the plan has been operating only partially full. The wire nail department at this plant was burned some time ago, but a new mill is being erected, which is nearing completion and will probably be ready for operation within a month. New nail machines are being installed and the capacity of the new nail mill will be somewhat larger that that of the plant that was burned.

Mexican Railway and Industrial Notes.

Harvest and Business Propects.

DURANGO, August 31, 1904.—From all parts of the country come reports of an exceptionally favorable character in regard to the prospective yield of crops. This is especially true with respect to wheat, the estimated yield for the year being placed at 1,500,000 cargas, of 161 kilos. This is a large increase over last year's production, and sufficient for domestic needs. The yield of other cereals will also be large, the season having been very favorable for the growth and maturing of field crops. Since in Mexico, as in other countries, the prosperity of those engaged in agriculture is reflected in all lines of commercial activity, the situation may be described as justifying optimistic views for the near future, with a general belief existing as to the speedy advent of improved business conditions. For some months past there has been more or less sluggishness in the business movement in several of the central points. The capital has been affected, though not seriously, by a stringency in the money market; trade in this city has been inactive, one of the oldest and most important wholesale houses having been compelled to come to an arrrangement with its creditors. Notwithstanding this, the general conditions of trade throughout the country have been, and continue to be, good. In the mining districts there is much activity, as shown by the free placing of orders for new equipment and machinery.

In the railway world of Mexico, since the merging of the principal systems, there has been little to note outside of regular routine. The appreciation of the *peso* and its steady holding of its improved status has been of great benefit to the railways. Commenting upon their present condition, the Mexican *Herald* remarks:

> Although the first six months of this year have seen a few failures of industrial and financial interests in Mexico, no railroad has gone into the hands of a receiver and their condition generally throughout the country is said to be better. Of the 46 railroads in Mexico very few, if any, are paying dividends, but almost without exception they are paying expenses and the management of the more important lines believe that before many months the receipts will be sufficiently large to guarantee more than that.

The belief is general that actual work will be commenced next year upon one or more of the important extensions which have been so long talked about.

Railway Concessions and Construction.

The Government has intimated its willingness to grant a subsidy in aid of the extension of the International Railway from Durango to Mazatlan. The concession, covering the construction of a road from a point on the main line of the Merida & Peto Railway of Yucatan to the Villa de Satula, 125 km. distant, has been modified, a subsidy of $6250 per kilometer being granted to the company for the construction and it being released from other obligations.

The Pan-American Railway Company has been granted an extension of four months, from September 11, for the completion of 80 km. of track on the Isthmus of Tehuantepec, stipulated in the concession.

The Mexican Sulphur Company, owning properties in the State of San Luis Potosi, has obtained a concession to construct a line from the mines to a connection with the Mexican Central Railway. The Mexican Sulphur Company is a Southern United States corporation.

An electric railway to connect the cities of Aguarcalientes and Guadalajara, 210 km. in length, is a project said to be contemplated by Colorado capitalists.

A line of railway running from Jaral to Salvatierra in the State of Guanajuato is being promoted by local people.

A concession covering a narrow gauge line from Santa Anita to Ayoguazco in the State of Oaxaca has been obtained by the Compania de los Ferrocarriles Urbano y Agricola de Oaxaca.

The concession granted to George W. Defts in 1902 for the construction of a railway through the States of Hidalgo, Vera Cruz and Puebla has been cancelled.

J. J. D.

The Strength of Steel at High Temperatures.

Prof. C. Bach has presented in the *Zeitschrift des Vereines Deutscher Ingenieure* the results of an elaborate series of tests of the strength of steel at high temperatures. Bars from three different works were tested, these being distinguished by the letters O, K and M. Of the bars O, four were subjected to tensile tests at ordinary temperatures, and successive lots of four to tests at the temperatures, 200, 300, 400, 500 and 550 degrees C. At ordinary temperatures the strength of the steel was, for bar No. 2, for example, 27 tons per square inch, the ultimate extension on a gauge length of 8 inches 26.3 per cent. and contraction of area 46.9 per cent. The results of the tests showed that the strength increased up to 300 degrees C. by about 3.17 tons per square inch, and from this temperature onward the strength fell, roughly in proportion to the temperature, to 13.1 tons per square inch at 550 degrees C. The ultimate extention decreased from 25.5 per cent. at ordinary temperatures to 7.7 per cent. at 200 degrees C., from which again it rose to 39.5 per cent. at 550 degrees C. The contraction of area also fell at 200 degrees C. but did not commence to rise until the temperature was above 300 degrees C. In the case of the bars from the works distinguished by the letters K and M, tests were made by keeping the loads on for a considerable time. This prolonging of the action of the load had no effect until the temperature reached 300 degrees C., at which point it caused a slight decrease of strength, and at 400 and 500 degrees a greater decrease. As regards the effect of prolonged loading on the extension and contraction between the temperatures of 300 and 400 degrees C. it caused an increase in both, but from 400 degrees C. the extension and contraction under prolonged loading decreased until at 500 degrees C. they were lower by from 20 to 25 per cent. than with ordinary duration of test.

Professor Bach draws the conclusion from his investigations that for steam boilers, piping, &c., the strength of steel should be tested at the higher temperatures; and he is of opinion that this conclusion is justified not only by his experiments, but from the well-known fact of the brittleness of steel when worked at a blue heat.

National Tube Company Improvements at McKeesport.—Work is going on steadily in the practical rebuilding of the National Works of the National Tube Company, at McKeesport, Pa. Plans call for the practical rebuilding of the entire plant. One of the two blast furnaces, which was practically rebuilt, has been blown in, and the foundations for the third furnace, which will be an entirely new stack, are in place. A third converter has been added to the Bessemer works. The blowing engine house is being enlarged and new engines are being set up. The power plant will be one of the most complete in the Pittsburgh district, a large reservoir being constructed to settle the water before being distributed, and three large pumps are being installed with a daily capacity of 15,000,000 gallons. It will be a year or more before these large improvements and additions have been completed.

Republic Mills Close Down.—The Brown-Bonnell and Valley Works of the Republic Iron & Steel Company, at Youngstown, Ohio, have been closed down indefinitely. It will be recalled that as yet no settlement of the puddling and bar iron scales has been made between the Republic Iron & Steel Company and the Amalgamated Association. The dispute is to be submitted to a board of conciliators, consisting of three members. The Republic Company has selected Henry W. Heedy of the Ohio Iron & Steel Company, at Lowellville, while the Amalgamated Association has chosen Ben Davis of Birmingham, Ala. A number of persons have been suggested for third conciliator, but as yet no selection has been made. The action of Republic Iron & Steel Company in closing down the Youngstown mills probably indicates that this concern has decided not to operate these plants again until the scale has been settled. The Bessemer Steel Works of the Republic Iron & Steel Company, at Youngstown, is also closed down this week, but may possibly start next week.

PERSONAL.

M. C. Chomienne, of the Société Ind. des Etablissements Arbel at Rive de Giro, Loire, France, is now in this country. The company is among the largest in France making forgings, springs, &c.

Among the recent arrivals from Germany are Karl Klein, chief engineer of the Phoenix Works at Ruhrort-Laar, and Engineer Schmitz of the well-known firm of machinery builders, Breuer, Schumacher & Co., of Kalk, near Cologne.

Henry J. Eberhardt, who was for many years with Gould & Eberhardt of Newark, N. J., and Elmer G. Eberhardt, who was also with the same company for several years, and Frank E. Eberhardt, another brother, are now associated in business as Eberhadt Brothers Machine Company. The new firm will specialize in the manufacture of gearing and gear cutting machinery, at Newark, N. J.

A complete change of control and management of the Dillon-Griswold Wire Company, Sterling, Ill., took place September 2. C. M. Wicker has resigned the presidency in favor of Chester A. Griswold, and retired from the company. H. C. Wicker has resigned as general manager, that position being given to John B. Howat, who left the superintendency of a steel mill at Sharon, Pa., to accept the new position. Mr. Howat will remove his family to Sterling and will have active charge of the plant, while Mr. Griswold will divide his time between his interests at Sterling and at Troy, N. Y. The election of the new officers above outlined will be ratified at a directors' meeting to be held this week.

John R. Black, who has been buyer for William Blair & Co., and Horton, Gilmore, McWilliams & Co., of Chicago, and the John Pritzlaff Hardware Company of Milwaukee, has accepted the position as buyer for George A. Bushnell, proprietor of the American Buying Company, Ceylon Building, Chicago. The plan of this company is to act as buyer for a large number of retail hardware dealers, placing orders direct with the mills and securing concessions because of volume of business handled that will save to its customers much of the present jobbing profit.

J. E. Galvin, Jr., has been appointed superintendent of the Pittsburgh works of the American Steel Foundries.

Thomas Thompson, formerly foreman melter in the South Sharon Works of the Carnegie Steel Company, has resigned to accept the position of superintendent of the open-hearth department of the Tennessee Coal & Iron Company, at Ensley, Ala.

William H. Nichols, who is to be the next president of the Society of Chemical Industry of London, is the second American to have been elected to that office, Dr. Chandler having been the first. He is president of the General Chemical Company and president of the Nichols Chemical Company, the largest copper refineries in the world. He was born in Brooklyn in 1852, and was graduated from the New York University in 1870.

Charles Colcock Jones, lately mining and examining engineer of the Mountain Copper Company of Shasta County, Cal., has established himself as consulting engineer at Salt Lake City.

Clinton S. Marshall has been made division superintendent in charge of the Worcester works of the American Steel & Wire Company, taking the position made vacant by the resignation of Harry G. Stoddard, who has accepted the presidency of the Trenton Iron Company. Mr. Marshall is an old Washburn & Moen man, and was promoted to his new position from the superintendency of the South Works, at Worcester. J. B. Moss has been promoted to superintendent of the South Works, and H. K. Swinsco, formerly superintendent of the San Francisco plant of the American Steel & Wire Company, has been made assistant superintendent. Another recent change is the appointment of Clarence Gale as superintendent of the copperas and color department of the Worcester works, to succeed Charles H. Bowker, resigned.

Francis T. F. Lovejoy, formerly secretary of the Carnegie Steel Company, has been lying seriously ill at Glenwood Springs, Col. However, his condition has improved in the last few days and his physician holds out strong promises of permanent recovery.

George A. Hogg of the George A. Hogg Iron & Steel Foundry Company of Pittsburgh, manufacturer of rolls and rolling mill machinery, has recently returned to Pittsburgh from an extended Western trip. Mr. Hogg reports great prosperity in the Western farming States and says that he saw corn sold at 40 cents a bushel, which is an exceedingly high price.

Col. Frank J. Hearne, formerly president of the National Tube Company of Pittsburgh, but now president of the Colorado Fuel and Iron Company, was in Pittsburgh last week for a short time. Mr. Hearne reports general business in the West as being fairly good and the outlook quite promising.

The Norfolk & Western Railway Company announce the following appointments, which went into effect September 1: L. P. Ligon, master mechanic, Eastern General Division, vice H. T. Herr, resigned; L. D. Gillett, master mechanic, Pocahontas Division, vice L. P. Ligon, transferred; J. M. Thomas, general foreman, West Roanoke, vice L. D. Gillett promoted.

Car Works at Paris, Ill.—John J. Cummings, president of the McGuire-Cummings Mfg. Company, Chicago, is building a plant for the manufacture of car bodies at Paris, Ill. The plant will cost between $250,000 and $300,000 and will employ about 600 men. The McGuire-Cummings Mfg. Company now makes practically everything that enters into the construction of trolley cars and horse cars except the bodies, and Mr. Cummings is erecting the Paris plant with the view of shipping there the trucks and other parts of cars manufactured in Chicago and assembling the completed cars at Paris. The following buildings are being erected at Paris: Erecting shop, 152 x 565 feet; blacksmith shop, 65 x 75 feet; machine shop, 60 x 75 feet; truck shop, 60 x 75 feet; wood shop, 150 x 200 feet; cabinet shop, 150 x 200 feet; varnish shop, 50 x 60 feet; dry kiln, 70 x 102 feet; dry room, 50 x 90 feet; iron storeroom, 40 x 60 feet; warehouse, 40 x 60 feet; power plant, 90 x 100 feet. These are all one-story brick buildings, with saw tooth roofs and factory ribbed glass. The power house will contain three 150 horse-power boilers and a 350 horse-power engine, together with one 150 and one 100 kw. generator, as well as pumps, feed water heaters, air compressors, &c. The plant will be heated by hot air blast. In the Chicago machinery report in this issue we give details of machinery required. The city of Paris has given Mr. Cummings 30 acres of land, on which this plant is being erected. Three railroad lines pass through the plant—the main line of the Big Four, Cairo division of the same road and the Vandalia road.

Portsmouth Steel Company.—Reports have appeared in the daily press to the effect that the open hearth steel plant of the Portsmouth Steel Company, at Portsmouth, Ohio, had shut down indefinitely on account of the dull condition of the steel market. We can state officially that this report is untrue, though it is a fact that the plant of the Portsmouth Steel Company was closed last week, and will probably be idle the major portion of this week, but the shutdown was for the purpose of making necessary repairs to equipment. The plant will resume operations in full in all departments not later than Monday morning, September 12.

The Orient Coke Company, organized last year, has completed 300 ovens in the Connellsville region, and made its first shipment of coke last week. This concern is building 200 more ovens, which will be ready for operation about January 1.

The Westinghouse Air Brake Company of Pittsburgh has received an order from the Baltimore & Ohio Railroad for the equipment of 1000 cars with the Westinghouse friction draft gear.

Pig Iron Production Increasing Heavily.

Stocks Reduced 60,000 Tons.

The details of the monthly blast furnace statistics submitted below show a heavy increase in the capacity blowing, due almost entirely to the resumption of work by the steel companies, and a decline in the stocks of merchant furnaces, which indicates clearly that consumption of merchant iron has overtaken production.

Coke and Anthracite Furnaces in Blast.

Location of furnaces.	Number of stacks	September 1. Number in blast.	September 1. Capacity per week.	August 1. Number in blast.	August 1. Capacity per week.
New York	18	7	9,541	7	9,213
New Jersey	8	4	4,819	4	4,726
Spiegel	2	1	175	1	166
Pennsylvania:					
Lehigh Valley	27	11	7,538	11	7,702
Spiegel	1	1	335	1	328
Schuylkill Valley	13	7	6,812	5	5,391
Low. Susquehanna	10	4	5,540	4	5,569
Lebanon Valley	11	3	2,651	3	2,417
Spiegel	1	1	488	1	597
Pittsburgh district	37	31	83,600	23	64,600
Spiegel	3	3	2,600	3	3,246
Shenango Valley	19	11	20,680	8	13,290
West. Penn	18	9	15,468	10	15,316
Spiegel	1	0	0	1	660
Maryland	5	3	5,504	3	5,536
Wheeling district	12	8	15,005	6	6,008
Ohio:					
Mahoning Valley	15	9	21,260	9	20,184
Central and Northern and Mich	17	8	14,000	6	12,497
Hocking Valley	2	1	200	1	210
Hanging Rock	12	5	3,853	4	3,040
Illinois	21	14	33,890	12	28,982
Spiegel	1	1	1,250	1	1,041
Minnesota	1	1	800	0	0
Wisconsin	5	1	1,173	2	2,264
Missouri	1	0	0	1	720
Colorado	5	2	3,000	3	4,500
The South					
Virginia	23	6	4,560	6	4,285
Kentucky	8	2	531	2	534
Alabama	42	19	20,500	16	17,246
Tennessee	16	9	5,540	9	5,024
Georgia	1	1	800	1	800
North Carolina	1	0	0	0	0
Totals	357	183	292,118	164	246,092

For a series of months the active anthracite and coke furnace capacity fluctuated as follows:

	Coke capacity per week.		Coke capacity per week.
September 1, 1904	292,118	April 1	368,215
August 1	246,092	March 1	347,424
July 1	272,301	February 1	335,339
June 1	336,197	January 1, 1903	346,073
May 1	368,244	December 1, 1902	336,617
April 1	337,257	November 1	330,110
March 1	308,751	October 1	337,837
February 1	273,692	September 1	328,243
January 1, 1904	185,636	August 1	328,745
December 1, 1903	244,156	July 1	303,793
November 1	273,715	June 1	337,492
October 1	353,142	May 1	337,627
September 1	360,197	April 1	331,140
August 1	353,681	March 1	316,039
July 1	384,825	February 1	325,440
June 1	388,178	January 1, 1902	291,992
May 1	373,496	December 1, 1901	317,358

The production of anthracite and coke pig iron in recent months has been as follows:

Monthly Pig Iron Production.

	April. (30 days)	May. (31 days)	June. (30 days)	July. (31 days)	August. (31 days)
New York	41,507	41,996	39,142	44,095	42,255
New Jersey	21,298	20,182	19,186	21,665	22,116
Lehigh Valley	41,184	44,022	37,747	36,062	34,867
Schuylkill Val.	30,293	43,159	27,022	23,585	28,667
Lower Susquehanna and Lebanon Val.	37,325	40,498	35,519	38,008	38,435
Pittsburgh dis.	422,572	407,482	339,124	302,266	340,053
Shenango Val.	104,151	95,152	73,666	61,708	64,374
West. Penn	96,134	79,636	73,612	72,465	70,746
Md., Va. and Kentucky	55,145	58,182	48,124	54,301	46,922
Wheeling dis.	86,658	89,085	71,734	29,249	42,784
Mahoning Val.	113,761	121,501	100,150	77,646	85,126
Cent. and No.	114,100	105,412	80,581	42,981	52,954
Hocking Valley and Hanging Rock	23,676	23,334	20,824	14,979	16,948
Ill., Mich., Minn., Wis., Mo. and Col.	204,108	197,827	171,130	165,338	172,488
Alabama	132,245	135,982	124,381	94,073	82,536
Tennessee, No. Carolina and Georgia	31,110	30,080	30,088	27,876	24,536
Totals	1,555,267	1,533,350	1,292,030	1,106,297	1,169,407

Production of Steel Companies.—Returns from all the plants of the United States Steel Corporation, the Cambria, Pennsylvania, Maryland, Lackawanna, Wheeling, Ashland, Republic, Jones & Laughlin, La Belle, Bethlehem, Calumet and Colorado companies show the following totals of product month by month. We present also monthly figures of the production of spiegeleisen and ferromanganese:

	Pig.—Total production. 1903.	1904.	Spiegeleisen and ferromanganese. 1903.	1904.
January	.....	502,994	....	6,673
February	.....	756,230	....	12,961
March	.....	913,412	....	23,128
April	966,850	974,006	11,755	29,145
May	1,037,325	927,534	17,600	25,755
June	1,021,839	788,822	16,309	24,950
July	987,855	694,892	14,933	27,284
August	993,564	747,570	15,862	19,280
September	956,363	.....	8,406	....
October	829,215	.....	10,374	....
November	553,067	.....	17,695	....
December	406,730	.....	15,394	....

We estimate the production of the anthracite and coke furnaces monthly as follows:

	1903. Gross tons.	1904. Gross tons.
January (31 days)	1,472,788	921,231
February (29 days)	1,390,615	1,205,449
March (31 days)	1,590,470	1,447,065
April (30 days)	1,608,431	1,557,267
May (31 days)	1,713,614	1,533,350
June (30 days)	1,673,228	1,292,030
July (31 days)	1,546,184	1,106,297
August (31 days)	1,571,126	1,169,407
September (30 days)	1,553,717	.....
October (31 days)	1,425,658	.....
November (30 days)	1,089,622	.....
December (31 days)	846,605	.....

These figures do not include the production of the charcoal furnaces, which have during the first six months of 1904 averaged about 35,500 tons per month.

There were started during the month of August two Henry Clay in the Schuylkill Valley, one Carrie, three Edgar Thomson and one Clairton in the Pittsburgh district; Newcastle No. 3, South Sharon and Claire in the Shenango Valley; one Lebanon in the Lebanon Valley; La Belle, two Bellaire and one Mingo in the Wheeling district; one Columbus and Toledo in Central and Northern Ohio; Fulton and Star in the Hanging Rock region; one Calumet and one South Chicago in Illinois; Zenith in Minnesota; Hannah and Tod in the Mahoning Valley, and three furnaces of the Alabama Coal & Iron Company and two Woodward in Alabama. There were blown out during August one Colorado, Rockhill in Western Pennsylvania; one Lebanon, Mayville in Wisconsin; Missouri in Missouri; Mary and Seneca in the Mahoning Valley, and one Pioneer and one Sloss in Alabama.

Stocks.

Believing that a classification of the merchant stocks by general geographical divisions would aid in a correct appreciation of the situation, we have arranged them in three groups: The Eastern, which includes New York, New Jersey, and the Schuylkill, Lehigh, Lower Susquehanna and Lebanon valleys; the Central Western and Northwestern, which includes Western Pennsylvania, the Shenango and Mahoning valleys, the Hanging Rock region, Central and Northern Ohio, and Michigan, Illinois, Wisconsin, Minnesota and Missouri; and the Southern,

which includes Virginia, Kentucky, North Carolina, Georgia, Alabama and Tennessee. The stocks, of course, do not include the holdings of the steel companies:

Merchant Furnace Stocks.

	May 1.	June 1.	July 1.	August 1.	Sept. 1.
East	74,637	90,492	96,002	104,086	104,028
Central and Northwest	145,394	212,312	281,617	312,873	294,310
South	224,028	243,088	243,225	253,381	212,050
Totals	444,059	545,892	620,844	670,340	610,390

It will be observed that stocks in the Central and Northwest and in the South have declined considerably.

Iron Ores of Lake Champlain District.

A correspondent writes to us: Having spent the past summer in the Adirondack region, bordering on Lake Champlain, and having in past years had more or less to do with iron ore mining and blast furnace work in various States of the Union, I became very much interested in the study of the past history of the iron business of this Adirondack region. The many ruined forges and old stone charcoal blast furnaces scattered along the region bordering on Lake Champlain show that in days long gone by that there were very many people at one time interested in developing this region. To-day practically all of the work that is being done is at Mineville, Lyon Mountain, and Ferona; of all of the vast number of enterprises started only three remain. As I have become interested in this subject, after having examined the present working bodies and their developments, which have been carried on successfully and continuously for so many years, I investigated what the original outcrop and magnetic attractions were at these points to show these large bodies of ore. I then became interested in comparing the indications and surface showings of these bodies, which have been developed so that they now show practically unlimited quantities of ore, with a large number of surface showings and magnetic attractions of undeveloped properties in this region. A careful and thorough investigation shows that there are to-day on the eastern slope of the Adirondacks hundreds of surface outcrops and areas of magnetic atttraction which are equal to, and some of them far superior to, the surface showings and magnetic attractions that were originally found at the points now being worked on such a large scale. The whole region seems to be absolutely an unexplored section of our country so far as any definite and well digested systematic plan of prospecting has been carried out, and even the largest of the companies now producing know but very little in regard to their properties, the fact being that the companies now producing ore have more ore in sight than they either have power to mine or have a market for, and it seems a mystery why a region that is so close to the market for iron in all its various shapes should remain so utterly ignored by the modern spirit of progress of this country.

The past history of the iron and steel made from the ores of this region shows that it is far superior in many respects to the iron made from the ores from other sections of our country. The quality of the ores from this section can by modern methods be kept so absolutely uniform as regards their chemical constituents that a furnace once burdened, so far as the ore is concerned, will give the manager no trouble. These ores can be kept uniformly at 65 per cent. in iron and above without any difficulty, which has been shown by continuous work on a large and commercial scale at a cost which even at the present low prices shows a margin of profit. Ores adapted to the manufacture of pig iron for all classes of steel can be produced in this region, from the low phosphorus ore for crucible steel with phosphorus at 0.005 in 65 per cent. ore to an ore for basic Bessemer with 60 per cent. Fe and 1.75 per cent. phosphorus, covering the whole present field of supplying ore for all classes of steel or iron demanded by the various uses to which these materials are put.

Judging from the capacity and size of the ore bodies which are now being worked, and using these for a base, there would be a reasonable certainty of being able to develop this region so that it should produce per year 5,000,000 tons of ore averaging 65 per cent. of iron. It would seem to me that the resources of this region should attract much more attention than they do, and I have every reason to believe that if competent and conservative practical men could be induced to make an exhaustive and careful examination of the region bordering on Lake Champlain they would be ready to indorse all that I have asserted, as what I have said is not hearsay, but is based on actual examination of the properties, both developed and undeveloped, with full access to all facts, figures and books of the corporations now in operation, backed up with 20 years experience in the iron business.

MANUFACTURING.

Iron and Steel.

The Standard Bolt & Mfg. Company, Alliance, Ohio, is considering the matter of removing its plant to Fort Worth, Texas, but is not in position at this time to make its plans public. The company manufactures air brake and knuckle pins, bolts, car forgings and other specialties in iron and steel.

The Bessemer steel plant and rail mill of the Lake Superior Corporation, Sault Ste. Marie, Ont., went into operation September 1. The blast furnaces will go into operation about September 15.

The Sloss-Sheffield Steel & Iron Company, Birmingham, Ala., states that it has started up on the open shop basis its New Found, Blossburg, No. 1, and Coalburg mines, which have been idle since July 1, and has lit the fires in 400 additional coke ovens which have been idle since about July 11.

The Seamless Steel Tubes Company, Detroit, Mich., has recently been reorganized and renamed and will in future be known as the Detroit Seamless Steel Tubes Company. The company makes a specialty of cold drawn seamless steel locomotive flues and stationary boiler tubes. Plans are now being prepared for large additions to the plant to meet the increasing demand for its product.

The Orbisonia (Pa.) blast furnace has been banked for repairs. It is announced that production will be resumed at the earliest possible date. At present the company is filling its orders from stock.

A 100-ton blast furnace is to be built at Dickson, Tenn., by the Tennessee Iron & Land Company, which has been organized with a capital stock of $1,500,000. The company has purchased 300 acres of iron ore lands, which will be developed and a 6-mile railroad will be constructed to facilitate shipments. The following officers have been elected: S. E. Hunt, vice-president; W. M. McMurray, treasurer; S. M. Grandy, secretary; W. C. Smith, asistant secretary; J. O. Griffith, manager, and W. W. Smith, assistant manager. The president has not yet been elected.

The new blast furnace of the Wheeling Steel & Iron Company, Martins Ferry, Ohio, is nearly finished and will probably be blown in early in October. This stack replaces an old furnace, and which was torn down to make room for the more modern one. The stack is 80 x 18 feet, and is provided with three 85-foot Massick & Crookes hot blast stoves. Power is provided by a battery of Wheeler vertical water tube boilers of 1500 horse-power capacity. The Top Mill blast furnace of this company was relined early this year and has operated steadily since being blown in. The tube mill of the company is now operated under the supervision of W. B. Williams, formerly connected with the National Tube Company and the Reading Iron Company. The puddling department at the Benwood plant will resume operations early in September.

The two new blast furnaces being erected by the National Tube Company at Lorain, Ohio, will probably be ready for blast by October 1. This company now has two stacks at Lorain, both of which are in operation.

The McClure Company of Pittsburgh, owning and operating the Washington Charcoal Iron Tin Mills, signed the Amalgamated Association scale last week and its plant is now in full operation.

No. 2 blast furnace of the La Belle Iron Works, Steubenville, Ohio, which has been under erection for nearly a year, is almost completed, and is expected to be ready for blast this month. The stack is 90 x 20 feet in size and will have a daily capacity of about 450 tons.

The works of the Portsmouth Steel Company, Portsmouth, Ohio, have closed down.

The Graham Nut Company, Allegheny, Pa., has moved its works to the new plant on Neville Island and is operating it to full capacity. The concern is building a fire proof warehouse five stories high and 40 x 113 feet in size on Carson street, Pittsburgh, and which is nearly completed.

The United Steel Company, Canton, Ohio, has successfully started the open hearth and blooming mill departments of its new plant, and is now producing billets, sheet bar and universal mill plate. The bulk of the sheet bars will be taken by the Stark Rolling Mill Company, Berger Mfg. Company and the Carnahan Tin Plate & Sheet Company. It is expected that the plant will remain in constant operation from now on, as the company has enough tonnage to last for the balance of the year. The officers of the United Steel Company are J. E. Carnahan, president; Jos. Biechele, vice-president; Edward A. Langenbach, general manager, and Harry R. Jones, secretary and treasurer.

General Machinery.

The Snohomish Iron Works, Snohomish, Wash., is building an addition to its plant, but will not require any new machinery for the present. The plant is running full on new and repair work.

Albert Shedd has purchased the hammer shops of the Eastern Forge, Nashua, N. H., for $3600. The property contains 45,300 square feet of land with spur track facilities and is for sale.

The Brown & Sharpe Mfg. Company, Providence, R. I., has begun the erection of an addition to its shops, 112 x 51 feet, and six stories high, which is one story higher than the building of which it will be a part. The new space will be devoted largely to the erecting department.

The Southern Electric & Mfg. Company is the name of a new industry at Anniston, Ala. The company is organized with a capital stock of $100,000. Six acres of land, at the corner of Twenty-third street and the Southern Railroad, have been given the company as a bonus. A new plant will be erected, comprising a three-story office building fitted up for offices, storeroom, packing room, assembling rooms, laboratory for experimental work and drafting department, and machine shop, 96 x 60 feet, to be equipped with modern machinery. The officers of the company are: President, Frank G. Lake; vice-president, R. W. Munk, secretary and manager, W. L. Goodhart; treasurer, E. H. Goodhart.

The Northwestern Mfg. Company has been incorporated at Milwaukee, Wis., with a capital stock of $60,000 by William P. Harper, William Stark Smith and John T. Harper, for the manufacture of motors, dynamos and other machinery. William P. Harper was for years connected with the Allis-Chalmers Company and has recently been the active manager of the works of the William Bayley Company of Milwaukee.

W. Q. O'Neall, Crawfordsville, Ind., who has been equipping a factory for the manufacture of corrugated steel culverts, is in the market for a corrugating machine heavy enough for No. 12 sheet steel; also punch and riveter.

The Virginia Iron Works, Virginia, Minn., has been purchased by A. C. Osborn of Eveleth, Minn., and C. E. Downs, Duluth, Minn., and will in future be known as the Virginia Foundry & Machine Company. The business was established in 1894 by W. J. White and John Stein, the latter gentleman being manager up to the time of its sale. It is the intention of the purchasers to materially add to the present plant.

The Lima Locomotive & Machine Company, Lima, Ohio, has received more orders during August than any previous month in its history. The erecting shop is working both a night and day force full time, and then the company is unable to keep up with the demand for Shay locomotives. The company is prepared to turn out direct connected locomotives for service on plantations, mines, quarries, &c., where the power required will not exceed 50 tons in weight.

The Driggs-Seabury Ordnance Company of Sharon, Pa., has been granted a Pennsylvania charter with a nominal capital of $50,000. This is the concern which proposes to erect a large ordnance plant at Sharon and remove the machinery already installed at a small plant in one of the Eastern cities to the new buildings. John Stevenson, Jr., and William Flinn of Pittsburgh are large stockholders in this concern.

The Howard Iron & Tool Company, Bellefonte, Pa., was chartered at Harrisburg, Pa., with a capital of $50,000. Frank Warfield of Bellefonte is a director.

The Interstate Engineering Company, Cleveland, will soon move its office force into its new office building, adjoining the recently erected plant at Bedford, Ohio.

B. H. Hershey has been appointed receiver for the Greer-Clarkson Company, manufacturer of machinery, Manheim, Pa. The company had a capital stock of $50,000. The liabilities are $19,000 and assets $15,000.

The foundry and machine shops of the Arizona & Sonora Mfg. Company, of which Roy & Titcomb are sales agents and principal owners, will not be moved from their present location to Douglas, as was reported. The company is satisfied with the present location. During the past year the concern has built and installed two 10-stamp gold mills, two 20-stamp gold mills, three 50-ton cyanide plants, two 50-ton concentration mills, one 50-ton wood burning reverberatory copper smelter and numerous pumping plants and hoisting works. Work now in hand includes the building of a 150-ton reveberatory smelter, with crushing machinery and power, for the Cieneguita Copper Company, operating in the Sahuaripa district of Sonora, the contract price of which is $60,000 gold, and $30,000 worth of concentrating machinery for the new mill of the Lucky Tiger Combination Gold Mining Company, operating in the Moctezuma district of Sonora. The company is also figuring on some eight other plants, ranging from 20 to 60 stamps, with power.

The Eberhardt Brothers Machine Company is erecting a two-story brick factory building at Newark, N. J.

Power Plant Equipment.

The Oil & Waste Saving Machine Company, Rochester, N. Y., has been organized for the manufacture of a machine for separating and reclaiming oil and waste and other substances. The machine has been used with good results at some of the large power plants. For the present the company will have all its machinery built by contract. The New York office is located at 71 Broadway. Edward H. Williams is president; T. S. Patterson, vice-president, and Arthur H. Ingle, secretary and treasurer.

The Kewanee Boiler Company, Kewanee, Ill., is sinking a deep well to supply water to its plant. Heretofore the company has been dependent upon the city supply, and in case of breaks has had to cease work. A storage plant of about 77,000 gallons capacity, to be filled with city water for reserve, is now being erected.

The Rockford Engine Works, Rockford, Ill., has been incorporated with a capital stock of $50,000. The incorporators are George Cormack, Jr., and Frederick C. Zumdahl.

George C. Earl, superintendent of the Sewerage and Water Board of New Orleans, La., has completed plans and specifications for the engines and other machinery to be installed in the several pumping stations. It is expected that bids will be opened about November 1.

The Northern Electrical Mfg. Company, Madison, Wis., recently sold to Greenlee Brothers, Chicago, a 200-kw. generator for the equipment of its plant at Rockford, Ill. The Water Works Company of Fon du Lac ordered a 90 horse-power vertical Northern motor for pumping service. This motor is to be used for driving a propeller type of deep well pump.

The Quartermaster, West Point Military Academy, will receive bids until October 6 for an electric light plant, including Corliss engines, generators, motor generators, switchboard, &c.

Bridges and Buildings.

E. M. Graves has the contract for the construction of a steel and concrete bridge over Fall Creek and Northwestern avenue, Indianapolis, Ind. The bridge will be of the Melan arch type, and the price bid was $44,848.

Foundries.

At the annual meeting of the Beaver Dam Malleable Iron Company, Beaver Dam, Wis., the capital stock of the company was increased from $75,000 to $100,000.

Edward J. Lambert, Syracuse, N. Y., who was for 17 years foreman of the plant of the Syracuse Chilled Plow Company, has leased a fully equipped foundry on West Fayette street, which he will start in operation October 1, producing gray iron castings.

George P. Rhoades has been appointed receiver for the Monongahela Foundry & Forge Company, Monongahela, Pa. The indebtedness of the company is placed at $70,000.

The New Phœnix Foundry Company, Chattanooga, Tenn., recently organized, has purchased the plant of the Phœnix Foundry Company, which is fully equipped. Operations began on Wednesday, when the first heat was taken off. J. W. Nolan is president and general manager; T. P. McMahon, first vice-president and sales manager; T. C. Latimore, second vice-president, and J. P. Nolan, secretary and treasurer.

Fires.

Part of the plant of the Champion Enameling Company, Blairsville, Pa., was recently destroyed by fire. The loss is placed at $28,000.

The cement plant of the Struthers Furnace Company, near Youngstown, Ohio, was destroyed by fire September 2. The loss is placed at $120,000.

The shops of the British Columbia Electric Railway Company at New Westminster, B. C., were recently damaged $30,000 by fire.

The packing plant of Street & Corkran, Baltimore, Md., was destroyed by fire last week, the loss being estimated at $125,000.

The shop of David McKnight, at 224 North Eleventh street, Brooklyn, N. Y., was destroyed by fire September 5. Considerable machinery was lost.

The saw and turning mill of W. H. Scott & Co., Terryville, Conn., was destroyed by fire September 1. The loss included automatic wood turning machinery as well as sawing tools. Loss $15,000.

Hardware.

The Hussey-Binns Shovel Company of Pittsburgh has decided to rebuild the burned portion of their works at Charlerol, Pa., as fast as possible.

At a meeting of the directors of the Simplex Washer Company of Davenport, Iowa, held a few days since, it was decided

to rebuild the plant recently destroyed by fire, installing new machinery and putting the plant in every way as good trim as it was before the fire. As there was no fire protection the old plant was completely wiped out by the fire, the loss after the insurance was paid being $5500. The plant was a new one, the last of the machinery having been installed the day of the fire. The company has made arrangements with several concerns to furnish tubs, castings, &c., which are being assembled and set up.

The Magara Sprayer Company has been incorporated at Middleport, N. Y., to manufacture agricultural tools. Capital, $50,000. Incorporators: D Miers and A. E. Butler, New York City, and F. H. Waggoner, Brooklyn.

The report that the Keystone Wire Fence Company, South Bartonville, Ill., is to erect a wire mill for the manufacture of its own wire is denied by that company.

Miscellaneous.

We are informed by the Tuthill Spring Company, Chicago, that its warehouse, which was destroyed by fire August 12, will be immediately rebuilt. Everything combustible on the premises was destroyed except part of the office records, and the finished springs and machinery on the premises were considerably damaged. The loss is something less than $20,000, fully covered by insurance.

The plant of the Erie Basin Shipbuilding Company, Buffalo, N. Y., has been purchased by Benjamin L. Cowles, a well-known Maine man and harbor master of the port. It is Mr. Cowles' intention to organize a new company for the operation of the plant for general shipbuilding and repairing.

The Chattanooga Roofing & Foundry Company, Chattanooga, Tenn., which manufactures an extensive line of sheet iron and cast iron goods, besides a large number of specialties, has recently shipped, or is preparing to ship, the galvanized iron work, cast iron work, wrought iron work or metal shingles for the following buildings: High School building, Chattanooga, Tenn.; business block for C. R. Hoye, Newton, Miss.; County Court House, Lenoir, N. C.; Presbyterian church, Milledgeville, Ga.; Methodist church, Greensboro, Ga.; African Methodist church, Pensacola, Fla.; Wartburg Court House, Wartburg, Tenn.; City Bank & Trust Company, Greensboro, N. C.; McLaurin Building, Rolling Fork, Miss.; Dean Hardware Company, Portland, Ark.; Bramlett Building, Corinth, Miss.; large block of buildings for W. O. Graham, Hattiesburg, Miss.; J. W. Lupo, Aiken, S. C.; block of buildings for J. H. Hines, Aiken, S. C.; large block of buildings for C. & G. Hagelstein Company, San Angelo, Tex.

The Safety Armorite Conduit Company, with offices in the Frick Building, Pittsburgh, and whose works are at West Pittsburgh, has brought suit in the United States Circuit Court for the Western District of New York against the Clifton Mfg. Company of Boston and Buffalo, alleging infringements of its patents for cleaning and enameling pipe for use in electric iron armored conduits. The concern alleges that the Clifton Company has been directly infringing its patents and intends to protect its rights not only against the Clifton Mfg. Company, but also against any other concerns who may infringe on the process.

The North Star Iron Works has been incorporated at Hammond, Ind., with $10,000 capital stock. The directors are Francis and Reuben T. Dodge, Myrtle and Bert P. Potter.

The Standard Steel Car Company of Pittsburgh, with works at Butler, Pa., has received an order from the Baltimore & Ohio Railroad for 1000 drop-end gondola cars for delivery in October and November. The Standard Steel Car Company now has enough orders for cars on its books to keep its entire plant running single turn until next February.

The Elkhart Voting Machine Company has been incorporated at Elkhart, Ind., with $10,000 capital stock. The directors are Francis M. Myers, Jas. S. Dodge and J. B. Davidson.

M. O. Reeves and G. L. Reeves will engage in the manufacture of automobiles at the Reeves pulley plant, Columbus, Ind. The model is their own invention. It will be a four-passenger car with four-cylinder, air-cooled gasoline engine of 12 to 14 horse-power.

It is said that the Union Switch & Signal Company of Pittsburgh has booked more orders for August than during any one month in its history. This concern has about completed the electro-pneumatic interlocking and switching plant for the St. Louis Terminal Association. This is the largest plant of its kind in the world, controlling all the traffic entering into and departing from the Union Station in St. Louis. The plant consists of three towers, one of them operating 215 levers, with 65 single switches and 48 double slips with movable frogs. Seventy-nine levers alone operate 194 signals. The other two towers operate 59 and 47 levers, respectively.

On September 1 the Riverside Metal Refining Company, Incorporated, succeeded to the entire business of the Riverside Mfg. & Supply Company, Limited, Connellsville, Pa. The concern smelts, refines and manufactures Babbitt metals, spelter and phosphor bronze. The officials are E. T. Norton, president; W. G. Marqua, secretary; John L. Gans, treasurer, and T. E. McDermott, superintendent.

Since the death of President J. S. Hinson a few months ago the National Car Coupler Company, Chicago, has reorganized with the following officers: President, C. Nowak, Sr.; treasurer, C. Nowak, Jr.; secretary, C. W. George; vice-president, J. Bailey. The company is enlarging its plant at Converse, Ind., and adding considerable new equipment. The company will make, in addition to its regular product of freight and passenger couplers, steel platforms, platform buffers and small steel castings.

A. O. Smith, with other Milwaukee capitalists, has bought from the Pope Mfg. Company the Smith Stampings factory of the Federal Mfg. Company, Clinton and Park streets, Milwaukee, and has incorporated under the name of the A. O. Smith Company, with $200,000 capital stock. This plant was established a number of years ago by C. J. Smith & Sons, and A. L. Smith was for many years treasurer and general superintendent. In 1899 it was bought by the American Bicycle Company, New York, Mr. Smith being retained as manager. Last fall this plant, together with all other plants of the American Bicycle Company & Federal Mfg. Company was bought by the Pope Mfg. Company. During the encumbency of the Federal Mfg. Company it was known as the Smith Stampings factory, and was devoted largely to the manufacture of such parts of bicycles as can be stamped from steel. Under the new *régime* the plant will be devoted almost exclusively to a line of deep drawing of steel in many difficult shapes, as well as a general line of stampings and pressings. Especial attention will be devoted to the manufacture of automobile parts. The company recently put in a 1200-ton press for pressing from high carbon steel the side members of all automobile frames. These members, up to 18 feet in length, can be pressed at one operation. Mr. Smith already enjoys a large trade for automobile parts from Europe, as well as with many of the largest automobile builders in this country. A. O. Smith is president; Chas. G. Foster, vice-president, and Chas. F. Hase, secretary and treasurer.

J. Wahlman & Son, Ishpeming, Mich., have the contract for building the new combination shop building at the Negaunee mine of the Cleveland Cliffs Iron Company. Ground for the foundation will be broken within the next few days.

The Middletown Car Works, Middletown, Pa., have received an order for 640 freight cars for the Argentine (South America) Government railroad. This is the largest order of the kind ever placed in America and the contract calls for the delivery of the cars beginning with October. This order was secured in competition with 20 other bidders, including British, German and Belgian companies. The Middletown cars now in use on the Argentine road are giving general satisfaction.

The Ellicott Lead & Zinc Company has been incorporated at Buffalo, capital $100,000, to manufacture specialties and deal in lead and zinc. Directors: Roy W. Taylor, Wilbur D. Munger, Wm. F. Rosner, Jno. B. Hans and Frank A. Taylor of Buffalo.

The Rolfe Electric Company has been incorporated at Rochester, N. Y., with a capitalization of $150,000, for the manufacture of electrical apparatus, and it is probable a new factory building will be erected and equipped. The directors are Fred'k W. Zoller, Geo. Kaeber, Arthur B. Enos, Rudolph Schmidt and Geo. H. Harris of Rochester, A. Miller Oldfield of Chicago and Charles A. Rolfe of Adrian, Mich.

A new corporation is to erect what will be known as the Kilburn Mill at New Bedford, Mass., to manufacture cotton goods. The main building will be 133 x 442 feet and three stories. The engine room will be 35 x 84 feet and the boiler room 40 x 126 feet.

The Sewerage and Water Board of New Orleans, La., awarded the contract for two gas producers, producing gas from anthracite coal, for $2200 each, to the Camden Iron Works, Camden, N. J., and addition to the transmission lines from the Central Power Station to Pumping Station No. 2 to the New Orleans Electric Company, the contract price being $3925.

The Edwards Iron & Steel Company, Rochester, N. Y., has been incorporated with a capital stock of $250,000, for the manufacture of the Edwards' railway mail cranes, mail catching and delivering devices, railway switches, signals and equipment, fire hose couplings and nozzles. The devices are designed for taking mail bags from and delivering mail bags to trains moving at any speed, are constructed wholly of iron and steel, and take the place of the old wooden devices now in use. As the business of the company warrants it it is proposed to erect shops for the manufacture of the various devices handled by the company. Among those interested in the company are J. B. Abbott of Geneseo, T. W. Shannon, C. T. Chapin and H. W. Rippey of Rochester, and J. H. Beall of New York.

The Tucker Sheet Feed Company, Memphis, Tenn., has been organized to manufacture the Tucker sheet feed for printing presses. It is not the company's intention to erect a plant at the present time. Among those interested are J. E. Tucker, inventor of the feed, and W. S. Brian.

The Foster Pulley Works has moved from Fairport to its new plant in Cuba, N. Y., which is now in full operation. The new buildings have more than double the floor space of the old and are equipped with new machinery, largely purchased from the Belting & Machinery Company, Rochester. Both gas and electric power are used.

The Buckley Wheel Company of Philadelphia was chartered at Harrisburg, Pa., with a capital stock of $50,000. Walter E. Buckley of 830 Corinthian avenue, Philadelphia, is a director.

The Iron and Metal Trades

Our monthly blast furnace statistics, the details of which are printed elsewhere, make a very encouraging showing. The productive capacity increased during the month of August from 246,000 tons on the first of that month to 292,000 tons on September 1. By far the greater part of this increase is due to the resumption, notably in the Central West, of work on the part of the steel companies, which is a clear indication that the demand for steel itself has largely increased. This movement is still under way, a large number of furnaces controlled by the United States Steel Corporation having blown in since the opening of the month.

The August production of the merchant furnaces was 421,800 tons, as compared with 411,400 tons in July. Simultaneously, the stocks held by merchant furnaces have declined from 760,000 tons to 610,000 tons, which is an eloquent proof of the fact that at last the consumption has overtaken production. The output of the steel companies increased from 695,000 tons in July to 747,500 tons in August, thus showing that the resumption which started in the month did not obtain full sway during August.

At the meeting of the Beam and Plate associations a compromise was reached between those large interests who urged a reduction to a 1.25c. base, Pittsburgh, and the largest iindependent interests, who were in favor of a 1.40c. base. On Plates 24 inches and narrower, which outside mills have been competing in for many months past, the base price is 1.30c. per lb.

It is understood that the Lackawanna Steel Company, which is rolling Shapes and will soon make Plates, will act in harmony with the other full members. So far as Beams and Shapes are concerned an effort is now being made to do away with one danger to the stability of prices of the rolled material by reaching an agreement among those who fabricate and erect as to prices. These figures are being discussed to-day, the plan being to fix upon one price for fabrication and upon a further additional price for erection.

Conferences have taken place as to a new price on Steel Bars. A meeting is to be held at an early date at which probably a reduction of $1 per ton will be agreed upon.

In the Merchant Pipe trade a further adjustment of discounts has been announced in the direction of lower prices.

Existing conditions will probably be recognized by the shadowy Billet Association at a meeting to be called at an early date. It is regarded as probable that the "official" price will be made $19, Pittsburgh.

All the reductions in prices have been too recent to allow their effect to be gauged as yet. In Wire, which was the first branch to be openly reduced, a very good tonnage has come out, and the mills are resuming.

In the other lines some good round orders have been taken, probably with a recognition of coming events. An encouraging sign is that two Lake boats have been contracted for, which call for 5000 tons of material. In the Skelp trade there has been more activity, and upward of 10,000 tons of Iron Skelp has changed hands in Pittsburgh.

Chicago reports some additional Steel Rail orders.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Sept.8, 1904.	Sept.1, 1904.	Aug.10, 1904.	Sept.9, 1903.
PIG IRON:				
Foundry Pig No. 2, Standard, Philadelphia	$14.25	$14.25	$14.25	$16.25
Foundry Pig No. 2, Southern, Cincinnati	12.00	12.00	12.00	14.75
Foundry Pig No. 2, Local, Chicago	**13.50**	13.50	13.25	16.00
Bessemer Pig, Pittsburgh	*12.60*	12.50	12.85	17.35
Gray Forge, Pittsburgh	*11.75*	11.75	12.00	15.50
Lake Superior Charcoal, Chicago	*14.75*	14.75	15.00	19.00
BILLETS, RAILS, &c.:				
Steel Billets, Pittsburgh	*20.00*	21.00	23.00	27.00
Steel Billets, Philadelphia	*22.50*	24.00	24.00	28.00
Steel Billets, Chicago	*20.00*	22.00	22.00	28.00
Wire Rods, Pittsburgh	*26.00*	28.00	28.00	35.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00
OLD MATERIAL:				
O. Steel Rails, Chicago	**10.50**	10.50	10.00	14.50
O. Steel Rails, Philadelphia	....	11.75	11.50	16.00
O. Iron Rails, Chicago	**10.00**	15.75	15.00	18.00
O. Iron Rails, Philadelphia	**15.50**	15.50	14.00	19.00
O. Car Wheels, Chicago	11.00	11.00	11.00	21.00
O. Car Wheels, Philadelphia	**12.00**	12.00	11.00	19.00
Heavy Steel Scrap, Pittsburgh	11.50	11.50	11.50	17.50
Heavy Steel Scrap, Chicago	....	9.50	9.25	14.00
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	1.48½	1.48½	1.48½	1.60
Common Iron Bars, Chicago	1.35	1.35	1.35	1.55
Common Iron Bars, Pittsburgh	*1.25*	1.30	1.30	1.60
Steel Bars, Tidewater	*1.45*	1.49½	1.49½	1.73½
Steel Bars, Pittsburgh	*1.30*	1.35	1.35	1.60
Tank Plates, Tidewater	1.53½	1.73½	1.74½	1.78
Tank Plates, Pittsburgh	*1.40*	1.60	1.60	1.60
Beams, Tidewater	1.53½	1.74½	1.74½	1.78½
Beams, Pittsburgh	*1.40*	1.60	1.60	1.60
Angles, Tidewater	1.53½	1.74½	1.74½	1.73½
Angles, Pittsburgh	*1.40*	1.60	1.60	1.60
Skelp, Grooved Steel, Pittsburgh	1.30	1.30	1.32½	1.80
Skelp, Sheared Steel, Pittsburgh	1.35	1.32½	1.32½	1.85
Sheets, No. 27, Pittsburgh	2.00	2.00	2.00	2.55
Barb Wire, f.o.b. Pittsburgh	*2.05*	2.05	2.40	2.00
Wire Nails, f.o.b. Pittsburgh	*1.60*	1.60	1.80	2.00
Cut Nails, f.o.b. Pittsburgh	*1.60*	1.60	1.65	2.15
METALS:				
Copper, New York	**12.62½**	12.62½	12.50	13.62½
Spelter, St. Louis	**4.92½**	5.00	4.75	5.70
Lead, New York	4.20	4.20	4.20	4.12½
Lead, St. Louis	**4.10**	4.12½	4.02½	4.25
Tin, New York	**27.50**	27.07½	26.25	26.60
Antimony, Hallett, New York	7.00	7.00	7.00	6.00
Nickel, New York	40.00	40.00	40.00	40.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York	3.49	3.49	3.49	3.99

Chicago.

FISHER BUILDING, September 7, 1904.—(*By Telegraph.*)

As far as Structural Materials, Plates and Bars are concerned this is a waiting market. Word has been passed along the line that noteworthy reductions in prices on the first two items, at least, would be made shortly. Indeed, these reductions were expected from last Wednesday's meeting, and the adjournment of the meeting of the Plate and Beam Association until Tuesday of this week has simply led to a stoppage of whatever buying movement existed. This uncertainty, while affecting only Plates and Beams directly, is indirectly influencing many other lines extending down as far as Pig Iron, only in the case of Pig Iron the weakness of the finished products is reflected in a strengthening in the raw product, for the reason that it is believed that as soon as Plates and Structural Materials are reduced a large number of projects involving immense tonnages, not only of these products but of castings as well, will be consummated. It is certain that many propositions involving the erection of buildings, bridges and boats and other improvements, necessitating large purchases of Finished Steel, are only waiting a reduction in the price of Plates and Beams to figures that will be commensurate with the cost and selling price of other Steel products, and it is hoped that as soon as reductions are made in Plates and Structural Shapes the whole Iron and Steel world will feel the impetus of this delayed business. What is thought to be the beginning of a resumption in shipbuilding on the great lakes is a contract taken by the American Shipbuilding Company for two large Steel boats, one of which will be built at Lorain and one at Cleveland, the two aggregating 5000 tons of Plates and Shapes. The continuation of the strike in the Southern mining fields, due to the unexpected strength among

the strikers, has reduced the sale of Southern Iron in this market to the minimum and has permitted Northern producers to maintain a firmer schedule than they have been able to do for some months. No single tonnages of any moment in Northern Iron have been placed, but there is a large volume of business being booked resulting from the aggregate of many relatively small orders. Northern furnaces are adopting the policy of booking business up to July, 1905, at an advance of 50c. per ton above present prices and a good many large melters are availing themselves of this opportunity, for the feeling is general that Iron prices will be much higher in 1905 than they are now. The Billet market is as quist as ever. The leading producer of Steel Rails booked about 20,000 tons last week, about 80 per cent. of which was from steam roads, and the Rail business in general is looking up. Many orders for Structural Material are being held in abeyance pending new prices, but a fair tonnage is being booked on a guarantee against decline of the Beam Association. Plate business is quiet compared with last year, but shows a little improvement compared with the week previous of this year, contracts being taken, of course, subject to reduction in price made by the Plate Association. There is nothing new to report on Sheets except that one independent has made still further reductions on the price of 8 to 16 gauge, inclusive, in narrow widths. A new Pipe price-list was promulgated to take effect Saturday, September 3, details of which are given under that heading. Boiler Tubes are unchanged in price and slow in demand. Nothing new has developed of importance in Cast Iron Pipe. Old Materials are still strong, dealers buying everything that is offered at fancy prices, in order, possibly, to maintain the present fictitious prices on these products. Wire business has become more active and large tonnages have been booked. Coke continues to be strong, because of the diversion of large tonnages from the Virginia and West Virginia fields to Birmingham.

Pig Iron.—Tendencies are bullish rather than otherwise, both because of the increased demand on the part of foundrymen and because the contemplated cut in the price of Plates and Structural Steel promises a great increase in demand for Castings for operations that have been waiting for a reduction in the finished materials named. Southern Iron is held firmly on the $9.50, Birmingham, basis for No. 2, and but little tonnage is moving, owing to the great restrictions of production in the Southern fields due to the strike in the mines. Northern Iron is firm at $13.50 for No. 2 for large orders ranging from car lots up to 200 or 300 tons, while larger orders are shaded slightly in proportion to their magnitude and desirability. We repeat last week's prices without change, as follows:

Lake Superior Charcoal	$14.75 to $15.00
Northern Coke Foundry, No. 1	14.00 to 14.50
Northern Coke Foundry, No. 2	13.50 to 14.00
Northern Coke Foundry, No. 3	13.00 to 13.50
Northern Scotch, No. 1	14.00 to 14.50
Ohio Strong Softeners, No. 1	14.80 to 15.05
Ohio Strong Softeners, No. 2	14.55 to 14.80
Southern Silvery, according to Silicon	14.15 to 15.15
Southern Coke, No. 1	13.65 to 13.90
Southern Coke, No. 2	13.15 to 13.40
Southern Coke, No. 3	12.90 to 13.15
Southern Coke, No. 4	12.15 to 12.40
Southern Coke, No. 1 Soft	13.65 to 13.90
Southern Coke, No. 2 Soft	13.15 to 13.40
Southern Gray Forge	12.15 to 12.40
Southern Mottled and White	11.90 to 12.15
Malleable Bessemer	13.50 to 14.00
Standard Bessemer	14.25 to 14.75
Jackson County and Kentucky Silvery, 6 to 10 per cent. Silicon	17.30 to 19.30
Alabama Basic	.... to 13.15
Virginia Basic	14.10 to 14.35

Billets.—Very little trading is going on, and local forge shops are buying their Billets at about $22 a ton, delivered, instead of $24, the pool price for 4 x 4 and larger.

Rails and Track Supplies.—The leading producer reports about 20,000 tons of Standard Sections closed last week, the largest order of which was for 10,000 tons, with other orders for 5000 tons and less. Nearly all this business came from steam roads. Light Rails are unchanged from $20 to $21 per ton, maker's mill. Angle Bars are unchanged at 1.35c. to 1.40c. Spikes are now quoted at 1.65c. to 1.70c. in car lots from mill and as high as 1.85c. in small lots from store. Track Bolts are selling at 2.20c. to 2.25c., base, from mill, with Square Nuts, and 10c. to 15c. extra for Hexagon Nuts, with an advance of about 15c. for shipment from store.

Structural Material.—An encouraging sign in the Structural Steel market is an order taken by the American Shipbuilding Company for two large Steel steamers, referred to elsewhere in this report. The Steel for these boats was placed with two leading producers on the guarantee basis, the buyers getting the benefit of any official reductions made in Plates or Shapes. The month of August was a good one in Structural Material for miscellaneous use, comparing favorably with any other month this year, but did not differ from previous months in its lack of orders for railroad bridges. A rather better tonnage is being used by car builders than for some time. No advices have been received in Chicago up to Tuesday night of changes in prices to be made by the association meeting in New York. We therefore repeat last week's prices, which may or may not be in force by the time this item is read. We quote: Beams and Channels up to and including 15 inches and Angles 3 inches on one leg and larger, 1.76½c., Chicago; Tees, $1 per ton extra. Store prices on Structurals are as follows: Angles, Beams, Channels and Zees, base sizes, 2c. to 2.10c.; Tees, 2.05c. to 2.15c., either random lengths or cut to lengths 5 feet and over.

Plates.—It is reported that the American Shipbuilding Company placed an order with the Cambria Steel Company for 2000 tons of Plates and Shapes, to be used in the construction at the Cleveland yards of a new boat for the Anchor Line on the lakes, and about 3000 tons by the United States Steel Corporation for a steamer ordered by G. A. Tomlinson of Duluth, which will be built at the Lorain yards. There is a disposition on the part of miscellaneous users of Plates to close orders or contracts for this material subject to any reductions to be made by the Plate Association, so that their orders may be on the books before the rush comes following the announcement of a decided cut in price, which is expected this week. As no advices have reached the Chicago market of any cut, we repeat last week's prices with the caution that they may not represent official figures 24 hours later when this item is read. Official prices are unchanged, as follows: 1.60c., Pittsburgh, for ¼ inch and heavier, 1.70c. for 3-16 inch, 1.75c for No. 8, 1.85c. for No. 9. Nos. 8, 9 and 10 Plate are offered in this market by independents in widths 60 inches and under at about 1.72c., Chicago, as against the pool price of 2.01½c., Chicago, for No. 9. Store price on all gauges from No. 10 to the heaviest is 2c. to 2.10c., f.o.b. warehouse, with the usual extras for wide widths and special qualities.

Sheets.—There is little new to report in the Sheet market except that an independent Plate maker, who makes Sheets as light as 16 gauge, has made slight reductions from his former low price, bringing Nos. 8 and 9 Sheets to Chicago at less than 1.70c. in the narrow widths that this producer can roll. Prices on wide Sheets are unchanged and may be quoted a little higher or a little lower than the following figures by mills consulted: Nos. 11 and 12 are being offered at 1.76½c., as against 1.86½c., our schedule price; Nos. 13 and 14 at 1.81½c., as against 1.91½c.; Nos. 15 and 16 at 1.86½c., as against our regular quotation of 1.96½c. to 2.01½c. The same variation extends into the lighter gauges, although No. 28 gauge is not often offered much lower than 2.26½c. Store prices on Sheets are nominally, at least, unchanged, as follows: No. 10 and heavier, 2c. to 2.10c.; No. 12, 2.05c. to 2.15c.; No. 14, 2.10c. to 2.20c.; No. 16, 2.20c. to 2.30c.; No. 18, 2.30c. to 2.40c.; No. 20, 2.30c. to 2.40c.; No. 22, 2.35c. to 2.45c.; No. 24, 2.40c. to 2.50c.; No. 26, 2.50c. to 2.60c.; No. 27, 2.60c. to 2.70c.; No. 28, 2.70c. to 2.80c.; No. 29, 2.85c. to 2.95c. Galvanized Sheets are being sold in this market pretty generally at 80 and 7½ to 80 and 10 discount, Pittsburgh, for carload lots; 75 and 10 and 75, 10 and 5 are the ruling store quotations on small lots, though large desirable specifications would bring a little better price, f.o.b. Chicago warehouse.

Bars.—Although no meeting of the Bar Association is scheduled, the buying public has been influenced by widespread reports published in the daily papers to believe that a cut in Bars will be made and as a consequence buying in Bars has somewhat slackened. All the mills of the Republic Iron & Steel Company are closed down, pending a labor settlement and for the purpose of permitting orders to accumulate that will make economical rolling possible. Iron Bars are held quite firmly at 1.35c., base, half extras, Chicago, and rumors of lower prices are not given credence because of the continued advances in prices of Scrap, from which Iron Bars are largely made. Steel Bars continue to be quoted by association mills at 1.35c., base, full extras, Pittsburgh, in car lots, or 1.51½c., Chicago, with a large Western independent making prices as much lower as is necessary to secure desired tonnage for his mills. Hard Steel Angles rolled from Old Rails are held pretty generally at 1.17½c., flat, in car lots at mill. Business in Bars and Small Angles and Channels is disappointing, but better than it was a month ago. Soft Steel Angles, smaller than 3 inches on one leg, are unchanged in their prices of 1.45c., base, Pittsburgh, or 1.61½c., Chicago. Hoops are in slow demand, but prices are unchanged, nominally at least, at 1.71½c. rates, full extras. Store prices are as follows: Iron Bars, 1.70c. to 1.75c., base, full extras; Steel Bars, 1.70c. to 1.75c., base, half extras; Hoops, 2.10c. rates, full extras.

Merchant Steel.—A little restlessness is manifested among buyers of Merchant Steel because of rumors that Steel Bars will be reduced in price, as most of the items in the Merchant Steel list are based on the Steel Bar price. Official prices on Merchant Steel are as follows: Open Hearth Spring Steel to the general trade, 1.90c. to 2.10c.; Smooth Finished Machinery Steel, 1.76½c. to 1.81½c.; Smooth Finished Tire, 1.71½c. to 1.76½c.; Sleigh Shoe, flat, 1.56½c. to 1.61½c.; Sleigh Shoe, concave and convex, 1.66½c. to 1.71½c.; Cutter Shoe, 2.25c. to 2.35c.; Toe Calk Steel, 2.06½c. to 2.11½c.; Crucible Tool Steel, 6½c. to 8c.;

special grades of Tool Steel, 13c. and up; Shafting at 52 per cent. in car lots and 47 per cent. in less than car lots; Railway Springs, carload lots, 1.71½c. to 1.86½c., with reductions for larger quantities.

Merchant Pipe.—The leading producer of Merchant Pipe announced a change in the price-list, which took effect Saturday, September 3. This new price-list changes the subdivision of sizes, throwing ¾ to 6 inches in one class and putting the ⅜-inch size in the same class with ½ inch. While it reduces the prices on most of the sizes in Black Steel and Iron Pipe, it involves an increase in some sizes of Galvanized Iron Pipe. The following is the new list of discounts effective September 3, in car lots, f.o.b. Chicago:

	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
⅛ to ¼ inch.....	69.35	53.35	67.35	51.35
⅜ and ½ inch.....	73.35	61.35	71.35	57.35
¾ to 6 inches....	77.35	67.35	75.85	65.35
7 to 12 inches.....	72.35	57.35	70.85	55.35

Boiler Tubes.—No changes of prices in Boiler Tubes have followed the reductions in Pipe. Business continues to be quiet. The discounts for less than carload lots, Chicago, are as follows:

	Steel.	Iron.	Seamless Steel.
1 to 1½ inches.....	46.35	41.35	52.35
1¾ to 2¼ inches.....	58.35	41.35	40.35
2½ inches.....	60.35	46.35	43.35
2¾ to 5 inches.....	66.35	53.35	up to 4 in. 50.85
6 to 13 inches.....	58.35	41.35	....

Carload buyers are given a two-point better discount than the above. Warehouse prices on Boiler Tubes for delivery from store, Chicago, are as follows:

	Steel.	Iron.	Seamless Steel.
1 to 1½ inches.....	42½	37½	40
1¾ to 2½ inches.....	52½	35	37½
2½ inches.....	55	37½	40
2¾ to 5 inches.....	62½	47½	47½
6 inches and larger.....	52½	35	..

Cast Iron Pipe.—The city of Chicago has not yet awarded its contract for 2 miles of 24-inch Pipe, which the typesetting machines made to read 4-inch pipe in last week's item. No large inquiries outside of this are in evidence, and prices are unchanged, though firm, on the basis of $25.50 for 4-inch for Gas Pipe. Large lots command lower prices.

Old Material.—The Atchison, Topeka & Santa Fé road has just issued a list aggregating more than 5000 tons, one of the largest lists ever placed on the market. It includes about 1000 tons of No. 1 Wrought, 1000 tons of Rails, 800 tons of Melting Steel, 400 tons of Cast and about 750 tons of Busheling Materials. This material will be sold from the Chicago office of this road in the Railway Exchange Building. Prices rule a little higher than last week, though some soft spots have developed. We advance Iron Rails, 25c.; Heavy Melting Steel, 50c.; Mixed Steel, 50c.; Iron Car Axles, 50c.; No. 1 Railroad Wrought, 50c.; No. 2 Wrought, 50c.; No. 1 Cast Scrap, 50c.; Stove Plate and Light Cast Scrap, 25c.; Railroad and Agricultural Malleable, each 50c., making the current list as follows, per gross ton:

Old Iron Rails	$16.00 to $16.50
Old Steel Rails, 4 feet and over	11.75 to 12 00
Old Steel Rails, less than 4 feet	10.50 to 11.00
Heavy Relaying Rails, subject to inspection	20.50 to 21.50
Heavy Relaying Rails, for side tracks	18.00 to 20.00
Old Car Wheels	11.00 to 11.50
Heavy Melting Steel Scrap	10.00 to 10.50
Mixed Steel	8.50 to 9.00

The following quotations are per net ton:

Iron Fish Plates	$13.75 to $14.25
Iron Car Axles	16.50 to 17.00
Steel Car Axles	14.00 to 14.50
No. 1 Railroad Wrought	12.00 to 12.50
No. 2 Railroad Wrought	11.00 to 11.50
Shafting	12.50 to 13.00
No. 1 Dealers' Forge	9.50 to 10.00
Wrought Pipes and Flues	8.00 to 8.50
Iron Axle Turnings	7.50 to 8.00
Soft Steel Axle Turnings	7.50 to 8.00
Machine Shop Turnings	7.00 to 7.50
Cast Borings	4.00 to 4.50
Mixed Borings, &c	4.00 to 4.50
No. 1 Mill	7.00 to 7.50
Country Sheet	5.00 to 5.50
No. 1 Boilers, cut to Sheets and Rings	8.00 to 8.50
No. 1 Cast Scrap	11.00 to 11.50
Stove Plate and Light Cast Scrap	9.00 to 9.50
Railroad Malleable	9.50 to 10.00
Agricultural Malleable	9.00 to 9.50

Metals.—Business continues to be quiet, particularly with such firms as sell largely to railroads. No change in price is noted, except in Spelter, which has advanced, the price at present being 5c. to 5⅛c. for car lots, and 5.25c. to 5⅜c. for small lots. Casting Copper is being held at 12¾c. and Lake at 13c. Pig Tin is now quoted at 28c. to 28¼c. Pig Lead has advanced $2 a ton, and is now quoted at 4.20c. for 50-ton lots, 4.30c. for car lots and 4.40c. to 4.50c. for less than car lots. Sheet Zinc is 6⅛c. for car lots of 600-lb. casks and 6⅜c. for less than car lots. Old Metals are stronger, and several advances in prices are noted. We quote Copper Wire and Heavy, 11¼c. to 11⅜c.; Copper Bottoms, 10c.; Copper Clips, 11c. to 11⅜c.; Red Brass, 9⅞c.; Red Brass Borings, 8c.; Yellow Brass, Heavy, 7¾c.; Yellow Brass Borings, 6½c.; Light Brass, 5⅞c.; Tea Lead, 4c.; Zinc, 4.25c.; Pewter, No. 1, 17½c.; Block Tin Pipe, 22½c.

Coke.—Connellsville Coke is quite firm at $1.90 to $2 at the ovens, or $4.55 to $4.65, Chicago. Less favored Cokes in Virginia and West Virginia are selling as low as $1.75 at the ovens. Wise County, Va., makers continue to give away nearly all of their freight advantage to their customers. Such Coke has been sold freely in Chicago the last two or three weeks at $4, delivered, which, with the $2.25 freight rate, nets the oven $1.75, but now there is a tendency to advance prices at the ovens, making the Chicago price $4.25.

The Mark Mfg. Company, whose Pipe mills are at Evanston, Ill., and Zanesville, Ohio, has established offices in the First National Bank Building, Chicago, F. A. Lathrop, the newly appointed general sales agent, being in charge. The company is now making Boiler Tubes in addition to Pipe at its Zanesville mill.

Cincinnati.

FIFTH AND MAIN STS., September 7, 1904.—(*By Telegraph.*)

Pig Iron.—Probably not in several months has there been as little activity in the Pig Iron market in this territory as during the week that has just closed. There have been no transactions of any special magnitude, and while there are a few inquiries, calling for small tonnage from various points, there is absolutely nothing to hand that can be counted upon with certainty. What sales have been made during the week represent small lots, and were notably for immediate requirements. The foundries of this city, which up to the present time have been running on an average of three or four days per week, are now shut down completely owing to the strike of the moiders, which is effective to-day. This refers to the jobbing foundries only, of which there are 16. While it is true that the quantity of Iron and Coke consumed by this branch of the local trade is far from great, it nevertheless has its effect, and agents report quite an appreciable falling off in this line. They have received notice from the foundries involved to discontinue the shipment of Coke and Iron until further advised. Northern Iron is reported as firm, quotation received showing most furnaces holding on a $12 basis, with several producers still in the market at $11.50. The situation in the South is an uncertain quantity and will probably reach a climax to-day or to-morrow, as at this time many tenants will be evicted, which, it is feared, will cause serious disturbance. It is expected that one of the large producers in this section will be compelled to blow out another of its furnaces on account of existing affairs. It is reported that several speculative inquiries are in the field for round lots of Southern Iron, but nothing definite is known in regard to them. We learn of one inquiry that comes from the central part of the State calling for 1500 tons of Basic, and another from farther north needing 3000 tons of Southern Foundry. The Pipe interests are taking on considerable tonnage, distributed in small lots, as requirement demands. Freight rates from Hanging Rock district to Cincinnati, $1.15, and from Birmingham, $2.75. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1	$12.50 to $12.75
Southern Coke, No. 2	12.00 to 12.25
Southern Coke, No. 3	11.50 to 11.75
Southern Coke, No. 4	11.25 to 11.50
Southern Coke, No. 1 Soft	12.50 to 12.75
Southern Coke, No. 2 Soft	12.00 to 12.25
Southern Coke, Gray Forge	11.00 to 11.25
Southern Coke, Mottled	10.75 to 11.00
Ohio Silvery, No. 1	15 65 to 16.15
Lake Superior Coke, No. 1	13.15 to 13.65
Lake Superior Coke, No. 2	12.65 to 13.15
Lake Superior Coke, No. 3	12.15 to 12.65
Car Wheel and Malleable Irons.	
Standard Southern Car Wheel	$16.25 to $16.75
Lake Superior Car Wheel and Malleable	15.80 to 16.30

Coke.—Considerable quantities have been disposed of during the past week. The furnaces in the South are still securing a large percentage of the Virginia product, many ovens having contracted for their entire output. Foundry grades are in fair demand only, with no large contracts recorded. Virginia Furnace is quoted at $1.55 and $1.60, while the best grades of Connellsville Foundry are sold at $1.90 to $2.10, f.o.b. ovens.

Plates and Bars.—Very little new business is offering and trade is said to be quiet. It is quite probable, however, that after the meeting of the Beam Association, which takes place in New York to-day, prices will be made that will establish confidence and develop trade in this class of material. We learn that the bids for the Structural Work that is to span the tracks of the Pennsylvania Railroad on Eastern avenue, this city, are to be filed to-day. This will involve about 1500 tons.

Old Material.—Trade is slow in developing and dealers report there is scarcely enough business being transacted to establish prices. There is, however, something doing in this line, and prices are, as far as can be learned, un-

changed. We quote dealers' prices, f.o.b. Cincinnati, as follows: No. 1 Railroad Wrought Scrap, $11 to $11.50 per net ton; No. 1 Cast Scrap, $9.25 per net ton; Iron Rails, $14.50 per gross ton; Steel Rails, rolling mill lengths, $11 to $11.50 per gross ton; Iron Axles, $15 per net ton: Car Wheels, $11 to $11.50 per gross ton; Heavy Melting Scrap, $11.50 per gross ton; Low Phosphorus Scrap, $11.50 to $12 per gross ton.

Birmingham.

BIRMINGHAM, ALA., September 5, 1904.

There is an important change in the situation in so far as the miners are concerned. On Friday the Republic Iron & Steel Company announced its determination to accept the minimum price asked by the miners, say, 47½c. per ton, and it posted notices to the effect that it would accept that price and give work to all who wanted it, and would apply for it. But it was understood that the question of unionism was not to be considered, and that the price was open to all regardless of unions. This brought out the question of the close shop. In short, it was a challenge, and said to the miners we will pay your price, but we will manage our own business. This was a throwing down of the gauntlet, and it was picked up without hesitation. Following this came a most sweeping injunction from the United States Circuit Court enjoining the miners from interfering in the remotest degree with the properties of the various companies. It was a sweeping decision, and prohibits the miners from putting out pickets or intruding upon the property of the various companies who are complainants in the petition. In fact, it goes further than that and prohibits them from enticing their men away or from interfering with their labor.

The independent position assumed by the Republic Steel & Iron Company was a surprise to the other companies, and it shows how hard it is to hold them together.

The operators still assert that they have made headway, and that they have more men at work, and are turning out more Coal than they were when the strike commenced. The strikers, on the contrary, assert that the supply has greatly fallen off. But your correspondent inclines to the opinion that the operators have made some headway in the production of Coal, and that they are gaining a little every day. There is more or less dissatisfaction among the miners, and it is bound to spread, for the order of the Court is so sweeping that the usual tactics of intimidation pursued in such cases are made impossible. The order of the Court says that the defendants, who are officials of the United Order of Mine Workers and all other persons are prohibited from trespassing upon the property of the complainants, and the said defendants are also enjoined and restrained from interfering in any unlawful manner with any person in complainants' employ, or with any person seeking employment in the free access to and egress from such mines, mining camps or furnaces for the purpose of intimidating the employees. It also forbids the assembling of crowds on the property of the complainants and the enticing of the employees away from their duties. These extracts will give you an idea of the sweeping nature of the injunction.

At the majority of the mining camps the miners have given up the possession of their houses, and are making temporary shifts for shelter for their families.

There has been but a small demand for Iron. The prices quoted are unchanged. Sales are reported of No. 1 Soft and of No. 1 Foundry at $10. No sales of No. 2 Foundry were reported under $9.50, and there were sales of No. 3 Foundry at $9.25. Some No. 4 Foundry went at $9, and some Gray Forge was sold at $8.75. The largest sale reported was 600 tons of No. 3 Foundry at $9.25. There is not much disposition to take on important orders. The anticipation was that conditions would change by this time. But they have not yet improved. There have been no sales of any consequence.

Cleveland.

CLEVELAND, OHIO, September 6, 1904.

Pig Iron.—There is a little more quiet tone to the Pig Iron market, but it can hardly be said there is weakness accompanying it. The producers are showing strength in their attitude toward the market, while the buyers are somewhat indifferent for the time being. The result is a quiet tone to the whole situation. The undertone might be said to be strong, while surface demonstrations do not lean that way. Many of the buyers have covered their needs well for the time being. This has put the active furnaces in good condition, many of them having little uncovered capacity. The buyers are not in a rush to extend their covering for future delivery, and until this is done the furnace owners will do nothing toward the extension of the operations of the furnaces in the Valleys. The market accordingly has been about as it has seemed here of late. The prices are holding at about $12 in the Valleys for No. 2 for spot shipment, with $12.25 being asked on material for future delivery. This advance in the price and the attitude of waiting seen everywhere in the Finished Material market, had much to do with the easing up of sales. The buyers of Foundry are not sanguine enough as to the future to warrant their paying any higher prices than they have been paying here of late. The situation in Bessemer and Basic does not change very much. There is a little buying now and then, but the market is not at all strong or vigorous. The upward tendency in prices hardly applies in this branch. The Coke situation is almost without change. The foundries are buying a little more, but the increase in the business is hardly perceptible.

Finished Iron and Steel.—Some of the uncertainty which seems to have hung over the staples was removed in this territory during the week. The announcement was made that one of the big contracts for Structural which has been pending was closed. The sale was reported as of 6000 tons. The closing of this lot is understood to have been based upon the assurance that the prices have been reaffirmed. It is reported, without authority, however, that the business was placed under a guarantee. Specifications are expected to begin at once. There is still some uncertainty as to the prices of Plates and similar grades, but the mills have been holding steady. One of the local concerns which was an active competitive entity has been out of business for a week due to an accident. Some of the other small mills which were conspicuously known as price cutters have obtained enough business to keep them out of mischief for a while. This has driven more business to the larger mills and has strengthened the tone of the market to a considerable extent. There has been some discussion over the Bar situation, due to the weakness of the Bar Iron market. The prices have been steadily weaker and the smaller mills are cutting prices rather freely. It is now understood that 1.20c. is about the market at the mill for Bar Iron. Some effort has been made to cause a rally, but without effect. Some of the mills are laboriously trying to keep the prices up to the top, or at 1.30c., the announced basis, but this seems to be impossible. The Sheet situation does not show any marked change one way or the other. The larger mills are getting most of the business. Stock prices hold on a basis of 2.50c. for No. 27 Black Sheets.

Old Material.—The efforts of the buyers to lower the Scrap market have been without avail. The dealers have been able only to hold the market steady. We continue to quote, all gross tons: Old Steel Rails, $12; Old Car Wheels, $11 to $12; Heavy Melting Steel, $11 to $12. All net tons: Cast Borings, $4; No. 1 Busheling, $10.50; No. 1 Railroad Wrought, $12 to $12.50; Wrought Turnings, $7; Iron Car Axles, $16 to $17; No. 1 Cast, $10.50 to $11; Stove Plate, $7 to $7.50.

Philadelphia.

FORREST BUILDING, September 6, 1904.

Events during the past week have not been conducive to improvement in the Iron and Steel trades, and until prices for finished products are settled it will be useless to look for it. It is expected that something will be arranged before the week is out, but in the meanwhile it is impossible to say what will be done; so that any report of the market that is written must necessarily be somewhat restricted. In a general way it may be said, however, that the atmosphere is permeated with hopefulness, and while business in all lines is dull and dragging at the present time, there is a strong belief that 1905 is likely to be an extraordinarily good year. Nevertheless, there are several "ifs" to be taken into consideration, and are in connection with the corn and cotton crops maturing favorably, and with labor and the Presidential election. Time appears to be developing everything favorable, and nothing unfavorable, unless it may come out of the endeavor to reach price agreements at the meetings which are now being held. The next few days will be of so great importance, however, that it will probably be advisable to say as little as possible until there is a solid foundation for extended comment.

Pig Iron.—Considering that business has been interrupted by two or three days of more or less suspension of business, the amount of Iron sold has been quite encouraging, and indicates increasing wants on the part of consumers. It is true that the output has been cut down considerably, but it looks as though the limit has been reached, and that the market could stand a slight increase without hurting prices. It is difficult to say what the effect of an open market on finished products would be, but it ought not to affect Pig Iron, and probably will not, although consumers will endeavor to make themselves whole as far as they can by getting lower prices on their raw materials. That, however, is for the future to determine. Meanwhile there is a good wholesome demand for Pig Iron of all descriptions, and it is confidently felt that the next month or six weeks will develop a pretty active market. Prices may not improve, but they are not likely to go lower, although attempts will be made in that direction for reasons above mentioned. Meanwhile sales are easily made at figures as follows, deliveries Philadelphia or nearby points:

No. 1 X Foundry	$15.00 to $15.25
No. 2 X Foundry	14.25 to 14.50
No. 2 Plain	13.50 to 13.75
Standard Gray Forge	13.00 to 13.25
Ordinary Gray Forge	12.50 to 12.75
Southern No. 2 X Forge, rail	13.75 to 14.00
Basic	12.75 to 13.00
Low Phosphorus	17.50 to 18.00

Finished Material.—Business is so unsettled on account of the expected price changes that hardly anything will be done until definite figures are announced. There is a good deal of business around and with a reasonably fair chance mills will probably have more work than they have had for months past, but buyers want to be sure they are on safe ground before placing large orders. The result of the meetings which are now in progress will probably be announced in this issue of *The Iron Age*, so that nothing more can be said, except that a definite settlement, no matter what it may be, will be preferable to such uncertainty as there has been during the past few weeks.

Old Material.—Business is extremely dull and prices appear to be less firm than they were during August. Consumers expect lower prices to help them out on the reduced prices for their products, but holders of Scrap are tenacious and for the present show a strong front. Bids and offers for deliveries in buyers' yards are as follows:

No. 1 Steel Scrap	$12.00 to $12.50
Old Steel Axles	15.00 to 16.00
Old Iron Axles	18.00 to 18.50
Old Iron Rails	15.50 to 16.00
Old Car Wheels	12.00 to 12.50
Choice Scrap, R. R. No. 1 Wrought	14.25 to 14.50
Machinery Scrap	11.50 to 12.00
Low Phosphorus Scrap	16.00 to 16.50
Wrought Iron Pipe	10.50 to 11.50
No. 1 Forge Fire Scrap	10.00 to 10.50
No. 2 Forge Fire Scrap, Ordinary	8.00 to 8.50
Wrought Turnings	8.75 to 9.25
Wrought Turnings, Choice Heavy	10.00 to 10.50
Cast Borings	6.75 to 7.00
Stove Plates	9.00 to 9.50

Pittsburgh.

PARK BUILDING, September 7, 1904.—(*By Telegraph.*)

Pig Iron.—There is not much buying in Pig Iron, which is probably due to the unsettled condition in which the Iron market has been for the past three or four weeks. There is some inquiry for Malleable Bessemer Iron, and we note sales of several fair sized lots at $11.50 to $11.60, Valley furnace. Bessemer Iron for prompt shipment is held at about $11.75 to $11.85, Valley furnace, or $12.60 to $12.75, Pittsburgh. Northern No. 2 Foundry Iron for prompt shipment is about $11.65, Valley, and for delivery over balance of the year, $11.75 to $12, at furnace, is quoted, to which 85c. freight to Pittsburgh should be added. Northern Gray Forge is very dull at $11.75 to $11.85, Pittsburgh.

Billets.—Contrary to general reports, no change has yet been made in the official price of Billets, but a meeting of the Billet Association is to be held this week, probably in Pittsburgh, when the price of Bessemer and Open Hearth Billets will be reduced from $23 to either $19 or $20, Pittsburgh. A corresponding reduction will be made in price of Sheets and Tin Bars. In the meantime there is practically no buying of Steel aside from a few small sales of Bessemer and Open Hearth Billets which have been made on the basis of about $20, Pittsburgh.

Steel Bars.—A meeting of the Steel Bar Assoication is to be held in Pittsburgh on Thursday or Friday of this week, when the price of Steel Bars will be reduced to either 1.25c. or 1.30c. The higher figure is likely to be adopted, which would mean a reduction of $1 a ton below the present price.

(*By Mail.*)

Official advices have just come in of a reduction in price of Plates and Structural Steel of $4 a ton, or from 1.60c., base, to 1.40c., base, f.o.b. Pittsburgh, except on Plates 24 inches and narrower, which are reduced to 1.30c., base, or a cut of $6 a ton. These are the only official reductions in prices that have been made so far, but the Billet Association is to meet in New York to-morrow (Wednesday), when it is expected Billets will be reduced to either $19 or $20 a ton, with a corresponding reduction in price of Sheet and Tin Bars. In addition to the above reductions the National Tube Company has sent out notices of a reduction in price of Merchant Pipe and Tubes of $1.50 a ton or more, depending on sizes. These reductions in prices were forecasted in our report last week and are the result of the refusal of the trade to place orders for these materials at the former prices, which they regarded as too high and which they did not believe could be sustained. That the trade had sized up conditions correctly is proven by the reductions just made. It is hardly probable that any change in price of Rails will be made for this year delivery, but at a meeting of the Rail mills to be held in October prices of Rails will be fixed that will be satisfactory to the railroads and that will be based on conditions that may exist later in the year.

With Billets at $19 or $20 a ton, Plates and Structural Steel 1.40c. and Steel Bars 1.25c. or 1.30c., prices on these products may be said to be on a legitimate basis, and this ought to have the effect of stimulating demand, which has been sadly lacking for some time. It is stated that if these reductions had been made last fall, or even last spring, it would have been better for the whole trade, and this is probably true. For months prices have been topheavy, consumers have refused to place orders, except for small lots and actual needs, and tonnage has been disappointingly small. With the lower prices business ought to materially improve within a short time.

The Pig Iron market continues quiet and only small lots are changing hands. Bessemer Iron for shipment over balance of the year is held at $11.75 to $12, at furnace, or $12.60 to $12.85, Pittsburgh. For small lots of Bessemer Iron from $11.75 to $11.85, at furnace, is quoted. There is some demand for Malleable Bessemer Iron and several sales have been made at $11.50 to $11.60, Valley furnace. Northern No. 2 Foundry Iron for prompt shipment is quoted at about $11.65, Valley furnace, while for shipment over balance of the year $11.75 to $12, at furnace, is asked. Northern Forge Iron is about $11, at furnace, or $11.85, Pittsburgh, but there is very little doing. In Finished Iron and Steel demand is dull, but there have been no important changes in prices, except on Plates, Structural Steel and Pipe, which are noted above.

Ferromanganese.—Some low prices have recently been made on foreign Ferro for delivery at seaboard points. We quote English and domestic Ferro at $41, delivered, for large lots. For small lots $42 to $43 is quoted.

Muck Bar.—The market is very quiet and prices are weak. We quote best grades of Muck Bar made from all Pig Iron at $24, delivered to mills in the Pittsburgh district. We have not heard of any sales in this market for some time.

Wire Rods.—Owing to the unsettled condition of the Steel market and the probable reduction in prices of Billets to be made this week, Wire Rods are weaker and sales are reported at $27, Pittsburgh, or lower. Should a cut of $4 a ton be made in Billets a material reduction in price of Rods would naturally follow.

Skelp.—Some heavy sales of Grooved and Sheared Iron Skelp have been made in this market in the past week, Skelp mills and brokers reporting actual sales of 10,000 tons or more for delivery in the next three months. These heavy sales have had the effect of strengthening prices on Iron Skelp, which are very much firmer and also higher than for some time. There is very little demand for Steel Skelp and prices show no change. We quote Grooved Iron Skelp at 1.40c., Sheared Iron Skelp, ordinary widths and gauges, at 1.45c., while for narrow sizes and light gauges Sheared Iron Skelp has sold as high as 1.55c. Grooved Steel Skelp is held at 1.30c. and Sheared at 1.35c. to 1.40c.; all these prices are f.o.b. cars, delivered to mills in the Pittsburgh district.

Steel Rails.—A moderate amount of tonnage is being placed in Standard Sections, but mostly in small lots. A good deal is heard about a reduction in price of Rails, but nothing will be done regarding this until the Rail mills meet in October. The Allegheny Valley Traction Company is in the market for about 2500 tons of Steam Rails for a new traction road. We quote nominally at $28 for Standard Sections, the mills equalizing freights. Light Rails continue to sell at low prices, but a good deal of tonnage in these is moving. Light Rails range in price from $19 to $23, but in some cases $19 has been materially shaded for 35 to 45 lb. Rails.

Structural Material.—As indicated in this report last week, the Beam Association has finally decided to make a material reduction in prices of Structural Steel, and at a meeting held in New York to-day (Tuesday) Beams and Channels were reduced $4 a ton, or from 1.60c. to 1.40c. We can also state that the Lackawanna Steel Company has become a member of the Beam Association, and will sustain prices. Arrangements have also been made by which fabricated work will bring better prices in the future, and the whole situation in Structural Steel has been cleared up. For some time past very low prices have been made for erection, practically shutting out outside Structural concerns

that had to buy their Steel in the open market and pay official prices for it. No large contracts have been placed since our last report, and the outlook for the future is only fair, as a good many large jobs have gone over until next year. It is believed, however, that the reduction of $4 a ton on Structural Steel will stimulate demand, and that new tonnage will materially increase. The new prices effective from September 6 are as follows: Beams and Channels, up to 15-inch, 1.40c.; over 15-inch, 1.50c.; Angles, 3 x 2 up to 6 x 6, 1.40c.; Zees, 1.40c.; Tees, 1.40c.; Steel Bars, 1.35c., half extras, at mill; Universal and Sheared Plates, 1.40c.

Plates.—As noted in the opening of this report, the Plate Association has made a reduction of $4 a ton in price of Plates, or from 1.60c., base, to 1.40c., base, for Plates over 24 inches in width, while for narrow sizes ranging from 6¼ inches wide to 24 inches wide the price has been cut $6 a ton, or from 1.60c. to 1.30c. For some months past a number of outside Plate mills that can roll only narrow sizes, say up to 48 inches wide have been cutting prices, and it was to eliminate this competition, if possible, that the Plate mills decided to make a lower price on the narrow sizes. Demand for Plates continues dull, but it is known that a great deal of tonnage has been held back, waiting for the reduction in prices, and now that this has been made it is believed demand will very soon show material betterment. The new prices effective from September 6 are as follows: Tank Plate, ¼ inch thick, 6¼ to 24 inches wide, 1.30c., base; over 24 inches wide and up to 100 inches in width, 1.40c., base, at mill, Pittsburgh. Extras over the above prices are as follows:

	Per pound extra. Cents.
Gauges lighter than ¼-inch, to and including 3-16-inch Plates on thin edges	0.10
Gauges No. 7 and No. 8	.15
Gauge No. 9	.25
Plates over 100 to 110 inches	.05
Plates over 110 to 115 inches	.10
Plates over 115 to 120 inches	.15
Plates over 120 to 125 inches	.25
Plates over 125 to 130 inches	.50
Plates over 130 inches	1.00
All sketches (excepting straight taper Plates, varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches)	.10
Complete Circles	.20
Boiler and Flange Steel Plates	.10
Marine, "A. B. M. A." and ordinary Fire Box Steel Plates	.20
Still Bottom Steel	.30
Locomotive Fire Box Steel	.50

Shell grade of Steel is abandoned.

TERMS.—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum, and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within ten days from date thereof, discount of ¼ of 1 per cent. is allowable. Pacific Coast not included.

Sheets.—There is a moderate demand for Sheets, several of the leading mills reporting shipments in August to have been considerably larger than in July. The American Sheet & Tin Plate Company has recently started up the Hyde Park mill at Leechburg and the Old Meadow mill at Scottdale. While reductions in prices have been made on several lines of Finished Iron and Steel, it is not believed there will be an official reduction in price of Sheets, except in the event of a heavy cut in price of Sheet Bars, when it is possible Sheets might also be reduced. However, prices of Sheets have been very low for some time, and really have been at a point that anticipated any reduction in price of Sheet Bars. We quote No. 26 Black Sheets, box annealed, one pass through cold rolls, at 1.95c.; No. 27, 2c.; No. 28, 2.10c., in carloads and larger lots. Galvanized Sheets are sold at about 80 and 7½ per cent. off, but on very desirable specifications a few mills occasionally name 80 and 10 per cent. off in large lots. We quote Galvanized Sheets as follows: Nos. 22 and 24, 2.59c.; Nos. 25 and 26, 2.77c.; No. 27, 2.96c., and No. 28, 3.14c. Jobbers charge the usual advance over these prices on small lots from store.

Iron and Steel Bars.—No official reduction has yet been made in price of Steel Bars, but a meeting of the Steel Bar mills is to be held in Pittsburgh on Thursday or Friday of this week, when the price of Steel Bars will be reduced to either 1.30c. or 1.25c., probably the former figure. Tonnage in both Iron and Steel Bars is rather light, buyers holding off placing orders in the belief that a reduction in prices will be made, which now seems altogether probable. Demand for Iron Bars is light, and Republic Iron & Steel Company has closed down its Brown-Bonnell and Valley works at Youngstown for an indefinite period. We continue to quote Bessemer Steel Bars at 1.35c., Pittsburgh, but probably before this report reaches the reader the price will have been reduced to 1.30c. or 1.25c. We quote Refined Iron Bars at 1.25c. to 1.30c., f.o.b. Pittsburgh.

Spikes.—Demand for Spikes is quiet and prices are only fairly strong. We quote Railroad Spikes at $1.65 per 100 lbs. for less than carloads and $1.60 for carloads and larger lots, f.o.b. Pittsburgh.

Hoops and Bands.—Demand for Hoops is showing some betterment, but Bands are very quiet. We quote Steel Hoops at 1.55c., and Steel Bands at 1.35c., extras as per Steel card.

Merchant Pipe.—For some time demand for Merchant Pipe has been considerably less than the capacity of the mills to turn it out, and prices fixed from time to time by the mills have always been more or less shaded. Under date of September 3 the National Tube Company issued a new discount sheet on Merchant Pipe, in which material reductions in prices have been made, these reductions depending on sizes. The independent mills have also adopted the new discounts, which to consumers in carloads are as follows:

Merchant Pipe.

	Steel.		Iron.	
	Black. Per cent.	Galv. Per cent.	Black. Per cent.	Galv. Per cent.
⅛ and ¼ inch	71	55	69	53
⅜ and ½ inch	75	63	73	61
¾ to 6 inches	79	69	77½	67½
7 to 12 inches	74	59	72½	57
Extra strong, plain ends, ⅛ to ⅜ inch	64	52	62	50
½ to 4 inches	71	59	69	57
4½ to 8 inches	67	55	65	53
Double extra strong, plain ends, ⅛ to 8 inches	60	49	58	47

Boiler Tubes.—New tonnage in Boiler Tubes is light and the official discounts are being more or less shaded. These discounts to consumers in less than carloads are as follows:

Boiler Tubes.

	Steel.	Iron.
1 to 1½ inches	48	43
1¾ to 2¼ inches	60	43
2½ inches	62	48
2¾ to 5 inches	68	55
6 to 13 inches	60	43

In carload lots discounts are two points lower than the above.

Merchant Steel.—The Merchant Steel trade is quiet, and many large buyers who usually place their contracts at this season of the year are holding off for lower prices. They are doing this in spite of the fact that the larger mills agree to take such contracts guaranteed against decline. Prices are rather weak and for good sized orders our quotations would be materially shaded. We quote: Plow Slabs, ¾-inch and heavier, 1.60c.; Tire Steel, 1.55c. to 1.60c.; Sleigh Shoe, flat, 1.40c. to 1.45c.; Cutter Shoes, 2.05c. to 2.10c.; Plow Steel, 6 inches and under, 1.35c.; Toe Calk Steel, 1.85c. to 1.90c.; Crucible Tool Steel, 6c. to 8c. for ordinary grades and 12c. and upward for special grades. Shafting is 52 per cent. off in carloads and 47 per cent. in less than carloads, delivered.

Spelter.—A sensational advance in price of Spelter has taken place, owing to heavy sales of Missouri and Kansas Spelter for export. It is said that 8000 to 10,000 tons have been sold in the past two weeks for shipment to Europe. We quote Prime Grades of Western Spelter at 5.08½c. to 5.13½c., f.o.b. Pittsburgh, for prompt shipment.

Tin Plate.—The mills are running mostly on contracts, new business being rather light. It is claimed the recent reduction of 15c. a box has not stimulated demand for Tin Plate, but, on the contrary, it had the opposite effect, causing buyers to hold off in the belief that a still further reduction in prices may be made. We quote 100-lb. Cokes at $3.25, net, f.o.b. Pittsburgh district; terms, 30 days, or 2 per cent. off for cash in 10 days.

Coke.—We note an improved demand for Furnace Coke, while demand for Foundry is also active. Output last week in the Upper Connellsville region was 163,698 tons, compared with 158,481 tons for the previous week. The Frick Coke Company have blown in several hundred ovens, among them some plants that have been idle for a month or more. Output of Coke in the Lower Connellsville region last week was 55,770 tons, compared with 55,060 tons for the previous week. Strictly Connellsville Furnace Coke commands $1.50 a ton for prompt shipment, and we note sales of a considerable tonnage at that price. Outside makes of Furnace Coke range from $1.30 up to $1.45 a ton. Strictly Connellsville 72-hour Foundry Coke is $1.85 a ton, with some concerns quoting $1.90 to $2 a ton. Outside makes of Foundry Coke are selling at $1.60 to $1.75 a ton.

Iron and Steel Scrap.—The market on Old Material is very quiet and prices are merely nominal. Consumers of Scrap are holding off placing contracts until the general situation in the Iron and Steel market has cleared up. Heavy Steel Melting Stock is being offered as low as $11.50 a ton without finding buyers.

Pilling & Crane, Philadelphia and Pittsburgh, dealers in iron, steel, ores, coal and coke, have purchased the Kearney water power, in St. Lawrence County, at a large figure. It is believed that at some future time this power will be available in connection with some mining interests which Pilling & Crane have in that locality.

The new furnace of the Lookout Mountain Iron Company, at Battelle, Ala., is expected to blow in on Saturday.

Chicago Machinery Market.

CHICAGO, ILL., September 5, 1904.

The feeling of uncertainty as to prices in plates, structural shapes and bars has extended to the machinery trades and led to a temporary let up in buying, buyers hoping for lower prices on machinery in which these materials enter to any extent. The fear of a general tie up of organized labor, precipitated by the struggles of the butcher workmen's unions and extending to railroads and other transfer lines, is also having an unfavorable influence on the machinery market. On the other hand, the warm wave and liberal rains are taken as encouraging signs of an extremely large corn harvest, and should hopes in this direction be realized the deterrent influences named above, which are temporary in character, will be completely offset and an excellent machinery trade will result.

John J. Cummings, president of the McGuire-Cummings Mfg. Company, 122 North Sangamon street, Chicago, is erecting at Paris, Ill., a car works, described elsewhere in this issue. This plant will require among other things the following machinery, none of which has yet been purchased: Three 150 horse-power boilers, one 350 horse-power engine, one 150-kw. generator, one 100-kw. generator, about 60 motors, probably alternating current, ranging from ½ to 20 horse-power; 450 horse-power boiler feed pump and feed water heater in proportion; air compressor, furnishing 500 cubic feet of free air per minute at about 80 pounds pressure: a hot blast and ventilating plant, one single frame steam hammer about 2500 pounds, one bolt cutter, one 3½-inch bolt header, three helve and one trip hammer, one bulldozer, seven lathes, one of which is to be a turret lathe; one inclosed type planer, 11 drill presses, one cold saw, one cylinder sander, one spindle shaper, one band scroll resawing machine, four tenoners, one hand jointer, a number of saw benches, four four-side molders, two 10-inch and two 9-inch knife grinders, one surfacer with sectional roll, four side planers and matchers, four feed molders, one scraper and grinder, one vertical mortiser with universal boring attachment, one automatic cut off saw, one sash mortiser, three rip saws, one automatic saw and dado machine, one single surfacer, one carber, one swing saw, a number of tilting table jig saws, several grinders, besides punches, vises, drills and a large number of small tools.

The plant will also require dry kilns, the type of which has not yet been selected, and heavy railway scales. It will also require an up to date equipment of fire hose and plugs. A 50-ton overhead electric crane, 60-foot span, with cage, has been bought fom the Northern Engineering Works of Detroit. The buying is done by Mr. Cummings in Chicago.

The electrical department of the city of Chicago has made further awards on equipment of the Fullerton avenue power station. Only two bidders submitted figures on the 175-foot brick stack, 28 feet in diameter at base and 10 feet at top. Of these, H. R. Heinicke of New York, representing a German engineering firm, bid $7675, and a French firm, Alphonse Custodis Construction Company, $7788, or only $8 below the successful bidder. None of the local contractors submitted bids. The decision to erect this tall brick chimney will make unnecessary the mechanical induced apparatus on which bids have been asked from various sources and contract not awarded because figures were considered exorbitant. A 15-ton hand operated traveling crane with cage, 50-foot span, was let to the Shaw Electric Crane Company of Muskegon, Mich., at $1650.

Bids will be opened by the same department on September 17 for condensers sufficient to supply two 1200 horse-power Buckeye engines, the condensers to have a rating of 48,000 pounds per hour each under a 26 vacuum at a point 20 feet from the condenser. Bids on pumps will probably be readvertised because no bidders obeyed the clause in the specifications making it obligatory that both steam and electrical drive be included in the same bid. Dry vacuum pumps are specified.

On the same date bids will be opened for the following wire cables: 50,000 feet No. 6 B. & S. gauge, rubber covered, lead incased, electric light cable; 10,000 feet, seven conductor, 16 gauge, rubber covered, lead incased, fire alarm cable; 10,000 feet, four conductor, 16 gauge, rubber covered, lead incased, fire alarm cable; 10,000 feet, two conductor, 16 gauge, rubber covered, lead incased, fire alarm cables.

Bids for erecting the power station itself will be opened on September 12.

The public service department of the city of Chicago has completed plans for a sewerage pumping station at Seventy-third street and Jackson Park avenue, and has let contract with M. P. Byrne Construction Company for the entire equipment of this plant, aggregating about $900,000. An injunction suit is now pending to prevent the execution of this contract by the successful bidders, the action being taken in the name of taxpayers, though doubtless emanating from defeated bidders. The specifications call for four pumping engines of the Allis type, capable of pumping respectively 20, 30, 120 and 125 cubic feet per second against 8 feet head, with provision for 40 per cent. overload; three 100 horse-power water tube boilers; 15 miles of sewers connecting with the intercepting sewer on Jackson Park avenue, which will divert the sewage into the drainage canal from the lake, as well as a complete power house, 32 x 188 feet. Plans have been drawn for another pumping plant of somewhat smaller capacity at Ninety-fifth street and Erie avenue in South Chicago, the purpose of this plant being to pump sewage from the district served into the Calumet River, which will before long be diverted into the drainage canal. Special assessment notices are now being printed in the newspapers, covering the cost of this installation, but nothing will be done toward letting contracts for it until the assessment has been sanctioned by the courts. It will call for about 9 miles of sewers, part of which will be brick and part cast iron.

Chief Engineer Isham Randolph of the Sanitary district of Chicago, Security Building, has received four bids for the installation of turbines at the dam at Lockport, the terminus of the drainage canal proper. Specifications call for four turbine units, each with six wheels on a horizontal shaft, capable of developing 6700 horse-power each at full gate running at 165 revolutions per minute. Also two exciter units, four-power unit governors and two-exciter unit governors. The Stilwell-Bierce & Smith-Vaile Company of Dayton, Ohio, has submitted the lowest bid on the total plant, but Mr. Randolph has not yet decided to award contract to them, as it will be necessary for him to make careful study of the plans submitted by each bidder, as they are not at all uniform.

Number of bid in order received.	Name of bidder.	A. Four power units. Price per unit.	A. Four power units. Total.	B. Two exciter units Price per unit.	B. Two exciter units Total.	C. Four power unit governrs. Price each.	C. Four power unit governrs. Total.	D. Two exciter unit governors. Price each.	D. Two exciter unit governors. Total.	Total.	
1	S. Morgan Smith Company, York, Pa.	$25.210	$100,840	$2,581	$5,162	$2,500	$10,000	$625	$2,500	$117,252	(5)
2	Allis-Chalmers Company, Chicago	23.250	93,000	3,465	6,930	2,795	11,180	1,895	3,790	114,900	(4)
3	Stilwell-Bierce & Smith-Vaile Company, Dayton, Ohio	(a) 18,372	73,488	2,853	5,706	1,250	5,000	850	1,700	(a) 85,894	(1)
		(b) 20,954	83,816	2,853	5,706	1,250	5,000	850	1,700	(b) 96,222	(3)
4	Wellman-Seaver-Morgan Company, Cleveland, Ohio	19,250	77,000	3,800	7,600	1,237	4,948	841	1,682	91,230	(2)

In these figures plan (a) of the lowest bidders corresponds with the general propositions figured on by the other bidders, while plan (b) is offered by them as an improvement on original plans.

The plans of the Peoria Steel & Tool Company, Peoria, Ill., are rapidly coming to a head and sufficient funds have been subscribed by citizens of Peoria to warrant E. F. Farnham, who has active charge of the enterprise, to employ Architects Parr & Hulsebus, Y. M. C. A. Building, Peoria, to draw plans for four buildings, each 60 x 165 feet, one and two stories, boiler house and pumping plant for this plant. It is the purpose of Mr. Farnham and his associates to manufacture tool steel and to fabricate therefrom vises, tools and specialties. Details of power and machinery equipment are not yet forthcoming.

The Bryant Paper Company, Kalamazoo, Mich., is making several improvements to its plant, divided as follows: Section A, 72 x 104 feet; Section B, 72 x 162 feet; Section C, 72 x 176 feet; Section D, 72 x 96 feet; Section E, 39 x 88 feet; Section F, 24 x 69 feet. The company will install about 1000 horse-power in steam engines and boilers, one 124-inch paper machine and the other necessary equipment to build a paper mill.

The Illinois Tunnel Company has selected its site for coal transfer docks on the Chicago River, but declines to make the location public for the present. An extensive plant for transferring coal from vessels and cars to cars at the tunnel shaft will be required, but particulars are withheld. This plant, in connection with the freight tunnels under the streets and shafts therefrom to the boiler rooms of manufactories and office buildings, will enable large coal users to secure a supply of coal as required without paying tribute to the Teamsters' Union. The Illinois Tunnel Company will also have a large storage and transfer warehouse for general merchandise at West Taylor street and the south branch of the Chicago River, and a large central power station at Quarry street, which was referred to in last week's issue.

The Chicago Engineering & Construction Company, Great Northern Building, has secured the contract to construct locks and dams No. 4 and No. 6 in the Ouachita River, just below Camden, Ark., for the Government, the contract price being $428,138. While the work will consist mainly of excavation, filling, concrete work and timber piling, it will re-

quire the following iron and steel materials, which have not yet been bought: Five hundred feet 20-inch cast iron pipe, 535,000 pounds structural steel, 120,000 pounds iron castings, 18,000 pounds tie rods and bolts, 40,800 pounds 1-inch steel bars, 5400 pounds steel sprocket chain.

The New York Machinery Market.

NEW YORK, September 7, 1904.

In view of the fact that the week under review is usually regarded as an "off" week, owing to the almost general celebration of Labor Day lasting from Friday until Tuesday, it would seem perfectly justifiable to look for rather discouraging reports in the trade. Contrary to any such expectations, however, the reports gathered in the machinery district are of a decidedly encouraging nature. Practically all machinery merchants report that yesterday's mail was not only surprisingly heavy, but contained more inquiries and orders than were expected. Machine tool merchants are particularly sanguine, as in addition to the several large propositions upon which they have been working during the last few weeks they are now actively engaged in preparing bids for two new lists of unusual size which have come to the front since our last writing.

One of these latter propositions possesses particular interest aside from its magnitude, inasmuch as it is the Japanese Government which is seeking the bids. Of course the parties interested are guarding every scrap of information concerning this matter most zealously. We are informed, however, that the aggregate value of the machine tools asked for is considerably over $100,000 and that the principal item is a lot of 100 lathes of small and medium size containing turret heads. Another interesting feature of this matter is that the question of delivery may figure largely in the placing of the contract. The specifications require that delivery be made within 40 days of receipt of the order. This clause is making the machinery merchants who are bidding on the work look about even beyond the confines of their own establishments, and if the contract is captured by an American house a number of machine tool builders will be benefited. The question of the placing of the contract in this country suggests another interesting phase of the situation, as it is well known in the trade that the contest for the order is to be an international one. On the subject of delivery the American bidders can doubtless win out, but it is feared in some quarters that German and English machinery builders will submit very low figures.

This recalls the recent large order for projectile lathes placed by the Japanese Government which was taken by German firms. There was a side to that matter which, however, does not present itself in the present case. It will be recalled that the specifications for the projectile lathes called for motor driven tools. Local machinery merchants claim that their defeat was due to the American electric motor builders, who held out for an arbitrarily high price on their motors until it was too late. At the last moment they notified the machinery builders who were bidding that they had decided upon a cut of something like $47 per motor, but it was found that the bids could not be changed, and the order went to Germany.

In the present case the tools are to be belt driven, so that the motor people will not figure in the contest.

The other large list which we have referred to above was issued by the Lehigh Valley Railroad Company. It calls for about $125,000 worth of machine tools. They are all to have individual motor drives, and are all of heavy sizes and types, such as are usually employed in locomotive building. The tools, we understand, are to be installed at the company's new shops at Sayre, Pa. As the machines included in the list now in the hands of the trade comprise only the large sizes, it is inferred in the trade that additional specifications covering the smaller run of tools and wood working machinery will be issued at a later date. As the new buildings at Sayre are practically completed, and as the power plant equipment and blower systems were purchased quite some time ago, it is believed that the machine tool end of the equipment will be settled without further delay. Owing to the importance of the contemplated machine tool purchases it is thought that J. W. Platten, assistant to the president of the company, will attend to the matter personally. Mr. Platten's offices are located in Philadelphia. E. T. James is shop superintendent at Sayre, and A. E. Mitchell of South Bethlehem, Pa., is superintendent of motive power.

The sale by Receiver Smith of the United States Shipbuilding Company at public auction last week of the 300,000 shares of Bethlehem Steel stock held by the Shipbuilding Company terminated as was generally expected and hoped for. The only bidder was a representative of the Standard Trust Company. The upset price of $7,500,000 was bid. The sale was made pursuant to agreement between Charles M. Schwab and the Reorganization Committee by which Mr. Schwab will retain control of the Bethlehem Company. The sale is of extraordinary interest in view of the statement given out by William Nelson Cromwell of counsel for the Reorganization Committee, who said:

"The next sales will be those of the properties of the Crescent, the Moore and the Canda companies in New Jersey on September 8. These will be followed by the sale of the Eastern Shipbuilding Company, at New London, on the 12th, and of the Hyde Windlass Company and the Bath Iron Works, at Bath, Maine, on the 19th. The sale of the Union Iron Works, at San Francisco, will take place on the 26th, and the concluding sale of property of the Harlan & Hollingsworth Company and of the good will and remaining assets of the entire property will take place the first week in October.

"These properties will be purchased by the Reorganization Committee, and in due course will be turned over to the new corporation about to be formed, and the new securities will be issued by the Reorganization Committee in fulfillment of the reorganization plans. I anticipate that all this will be consummated within 60 days."

It will thus be seen that while Mr. Schwab will now be in a position to improve the Bethlehem plant as he has said he would, the other shipbuilding properties will also be placed in condition for a general housecleaning, which will doubtless necessitate large purchases of machinery equipment.

The only development in the Pennsylvania tunnel project during the past week was the awarding of the contract for the four caissons by S. Pearson & Sons, Limited, to the Cambria Steel Company. Two are to be located at the Long Island City end and two at the Manhattan end of the tunnel About 2000 tons of steel plate will be required in constructing the caissons, each of which will be 40 x 70 feet, to go down from 80 to 90 feet.

A controversy over the specifications covering the gas engines to be used in connection with the Coney Island end of the New York high pressure pumping fire system has temporarily held up the awards on this end of the work.

The Ridgway Machine Tool Company, Ridgway, Pa., expects to have the whole of its equipment installed in a short time. The shop is now running making machines and tools for its own use, and the company is running its foundry and machine shop on a limited scale. The company is ready to take orders in the entire lines, which consist of lathes, planers, radial drills and boring machines, as the patterns are completed. The officers of the company are H. R. Hyde, president; P. R. Smith, vice-president; R. J. Powell, secretary; E. C. Powell, treasurer; Lewis H. Morgan, superintendent.

Dodge & Day, Philadelphia, who are constructing and equipping the new buildings of the Victor Talking Machine Company, at Camden, N. J., have purchased the power equipment. The order for the two horizontal automatic high speed engines, 160 and 240 horse-power, respectively, was placed with the Ames Iron Works, Oswego, N. Y. Ervien & Co., Philadelphia, will furnish the 600 horse-power of tubular boilers, and the Crocker-Wheeler Company, Ampere, N. J., the two generators, 100 and 150 kw., respectively. The balance of the equipment, including 15 electric motors, ranging from 5 to 75 horse-power; two elevators, heating system, feed water and vacuum pumps, switchboard, wiring, sprinkling system, and water tanks has not been contracted for.

The Buffalo Foundry Company, Buffalo, N. Y., which received a contract from S. Pearson & Sons, Limited, for a portion of the segment castings on the Pennsylvania Railroad tunnel work, will soon be in the market for machinery necessary to machine the castings. The company is not far enough along yet to specify what character and design of machine will be wanted. E. G. Rippel, vice-president, is in charge of the matter.

The J. B. & J. M. Cornell Company, Twenty-sixth street and Eleventh avenue, New York, and Cold Spring-on-Hudson, N. Y., who also received a contract for a portion of this work, advise us that outside of the machinery for facing the flanges of the tunnel segments and possibly the apparatus for facing the seats or bosses for the bolts joining the segments, no machinery is likely to be required for the execution of the contract. J. H. Sayres, assistant treasurer, is in charge of the work.

The Landis Machine Company, Waynesboro, Pa., manufacturers of Bolt cutting and nut tapping machinery, has increased its capital stock with a view to increasing the shop equipment to be able to meet the increasing demand for the new Landis bolt cutter. The company state that already the trade at home and abroad has gone far beyond its expectations, and the increase in plant is demanded to meet the same. New machinery will be added to double the present output. The new extensions will be in charge of J. G. Benedict, secretary and treasurer of the company.

The Matawan Steel & Iron Company has commenced operations on its new buildings and extensions to its present plant. Large foundries and workshops will be constructed, and the output of the plant will be more than doubled. S. B. Eggleston, secretary of the company, will be in charge of the extensions.

The Friedrichstadt shipyards of J. & A. Jensen ag Dahl, Kristiania, one of the largest in Norway, have adopted the Haeseler pneumatic hammers and drills as standard, and

have placed a two-year contract with the Ingersoll-Sergeant Drill Company, covering their requirements.

The Stirling Blower & Pipe Mfg. Company of New York, and Hartford, Conn., advises us that the United States Government has recently ordered the League Island, Pa., Navy Yard plant to be equipped throughout with the Stirling exhaust and blow pipe systems.

The Hooven-Owens-Rentschler Company of 39 Cortlandt street has just booked several interesting orders for Hamilton-Corliss engines. These include a 1400 horse-power cross compound condensing engine, to be direct connected to a General electric generator, purchased by the Hoosac Valley Street Railway Company of Pittsfield, Mass.; a 1000 horse-power cross compound condensing unit to be direct connected to a Rand air compressor, and installed in Alaska by the Treadwell Gold Mining Company; a 500 horse-power engine sold to the Colemanville Water & Power Company of Colemanville, near Lancaster, Pa., and a 500 horse-power engine purchased by the Excelsior Powder Company of Kansas City, Mo.

The Washington Company of 39 Cortlandt street has booked the entire contract for the new power plant to be installed by the Hanover Furniture Company of Hanover, Pa. A Hamilton-Corliss engine and return tubular boilers will be installed.

The contract for the new dry dock to be constructed at the Brooklyn Navy Yard, N. Y., was awarded to G. B. Spearin of New York at $673,292. Mr. Spearin represented Spearin & Preston, contractors of Battery place and West street, New York. This firm will carry out the contract. The orders for the pumps and other mechanical equipment required have not been sublet by this firm as yet.

The Skinner Chuck Company, New Britain, Conn., resumed operations at its works August 30, after a ten days' vacation. The company took this opportunity for installing a new Putnam engine, which will give needed additional power, and for making general repairs and improvements in the plant. The company states that it has resumed work with a lot of unfilled orders on the books and with a bright outlook for business during the fall and winter. Foreign business has shown a decided improvement of late.

The Navy Department, Washington, will receive bids until September 21 for two boat overhangs and a locomotive crane for the Naval Academy, Annapolis, Md.

The following bids were opened August 30 for machine tools for the League Island and Washington navy yards and the Naval Academy at Annapolis:

Bidder 2. Drew Machinery Agency, Manchester, N. H.
3. John Brown & Sons, Baltimore, Md.
10. Walker & Kepler, Philadelphia, Pa.
30. Crocker-Wheeler Company, Ampere, N. J.
33. American Hoist & Derrick Company, St. Paul, Minn.
36. J. B. Kendall, Washington, D. C.
46. Wm. Wirt Clark & Son, Baltimore, Md.
48. Motley, Green & Co., New York.
50. Smith-Courtney Company, Richmond, Va.
54. Brown Hoisting Machinery Company, New York.
59. The Fairbanks Company, New York.
61. Fox Bros. & Co., New York.
63. Montgomery & Co., New York.
65. The Manhattan Supply Company, New York.
66. C. & C. Electric Company, New York.
68. Manning, Maxwell & Moore, New York.
69. Sherman-Brown-Clements Company, New York.
79. The Dodge Coal Storage Company, Nicetown, Philadelphia, Pa.
81. The Wellman-Seaver-Morgan Company, Cleveland, Ohio.
82. Estate of H. A. Rogers, New York.
83. Sprague Electric Company, New York.
85. J. Edward Ogden Company, New York.
86. George W. Field, Philadelphia, Pa.
89. General Electric Company, Schenectady, N. Y.
93. Industrial Works, Bay City, Mich.
98. Chicago Pneumatic Tool Company, New York.

Class 16. Two 5 horse-power multipolar direct current motors, 220 volts, shunt wound—Bidder 66, $210; 30, $259; 89, $260 and $302; 83, $320; 10, $498.

Class 17. One sewing machine table with motor—Bidder 65, $47.40.

Class 18. One hydraulic wire rope cutter—Bidder 69, $74.75; 61, $79.94.

Class 19. Bidder 36, $120; 61, $124.74; 82, $150.75; 59, $159.85; 68, $160; 69, $165.70.

Class 20. One weighing machine—Bidder 59, $210; 50, $219.89 (?); 48, $240; 65, $254.40; 68, $264.45.

Class 21. One platform scale—Bidder 59, $51; 46, $56; 50, $59; 48, $71.40.

Class 22. Two swing wood turning lathes—Bidder 68, $104.

Class 23. One single spindle electrically driven sensitive drill—Bidder 68, $108.

Class 24. One locomotive steam crane—Bidder 93, $7200; 73, $7450, $8450 and $9450; 33, $7997; 81, $8247; 79, $9050; 54, $11,000.

Class 25. One Boyer long stroke riveting hammer No. 5—Bidder 68, $95; 3, $97.50; 98, $100.

Class 26. One Blake vertical single acting twin-beam air pump—Bidder 2, $1288; 50, $1299.

Class 27. Three hydraulic claw or ground lifting type jacks—Bidder 82, $136.20; 59, $136.50; 36, $139.70; 61, $139.70; 48, $140.60; 63, $143; 69, $143.50; 46, $143.99; 68, $144.50; 86, $146; 65, $149.30; 50, $151.60; 85, $204.20.

Metal Market.

NEW YORK, September 7, 1904.

Pig Tin.—Under the leadership of London, the market here advanced considerably since the publication of the monthly statistics last Thursday. There has been keen competition for all business that has offered itself, and as a result the advances here have not been as heavy as in London. It is reported that there has been selling in this market at prices actually on par with those quoted in London. At the close to-day the market was a trifle easier, quotations for spot September and October deliveries being 27.50c. to 27.75c. After the close of the market here it was reported in the trade that spot could be purchased for 27.55c. The London market closed to-day £125 17s. 6d. for spot and £126 5s. for future. The arrivals thus far this month amount to 440 tons, while the quantity afloat is figured at 1900 tons. The total visible supply on August 31 was 4064 tons below that of August 31 of last year. The total statistics for Europe and the United States, as compiled by C. Mayer, secretary of the New York Metal Exchange, show:

	Tons.
Total visible supply August 31, 1904.....	12,480
Against visible supply July 31, 1904.....	13,818
Against visible supply August 31, 1903.....	16,544
Against visible supply December 31, 1903....	14,274

Deliveries into consumption during the month of August were good, amounting to 3000 tons. The total for the eight months of this year shows a decrease of 2800 tons compared with the same period of last year.

Copper.—Little interest has been manifested in this article during the week under review. Prices have remained unchanged, and while there is not very much business offering, the efforts on the part of large consumers to sell were not as marked as they have been of late. At this writing prices are quoted as follows: Lake, 12.62½c. to 12.75c.; Electrolytic, 12.50c. to 12.75c., and Casting, 12.37½c. to 12.50c. The London market is practically unchanged from last week, quoting at the close to-day as follows: Spot, £57 5s.; future, £57 6s. 3d., and Best Selected, £60 15s. The exports since the first of this month have amounted to 2529 tons. The total exportation for the monh of August amounted to 24,431 tons. Members of the trade do not expect to see as heavy an exportation this month as that of last month. It is estimated that the shipment during the month of September may run between 15,000 and 17,000 tons.

Pig Lead.—The market is quiet and unchanged. The recent advance in price made by the American Smelting & Refining Company has apparently had no effect upon the disposition of purchasers. Prices are unchanged, the American Smelting & Refining Company quoting on a basis of 4.20c. for "shipment" Desilverized in 50-ton lots. Strictly spot Lead in small quantities is quoted here 4.20c. to 4.30c., while St. Louis telegraphs 4.10c. to 4.15c. The London market has advanced a shade, to £11 13s. 9d.

Spelter.—The excitement of last week has entirely subsided. The market is again running along on a normal basis, but at higher prices than those quoted two weeks ago. Spot is now quoted 5c. to 5.12½c., while the St. Louis price is 4.92½c. to 4.95c. London shows a decline, naming £22 12s. 6d.

Antimony.—Demand is light and the market is easier. Cookson's and Hallett's are quoted at 7c. and other grades at 6c.

Nickel.—The usual amount of business is passing and prices are steady, large lots being quoted at 40c. to 45c. and smaller quantities at 50c. to 60c.

Quicksilver.—The market is very quiet and weak. Flasks of 76½ lbs. were quoted to-day at $42, with the prospects of lower prices at any time. London is unchanged at £7 15s.

Tin Plate.—Nothing new has developed in the situation as regards Tin Plate. The market is rather quiet and shows some weakness. The American Sheet & Tin Plate Company is quoting $3.30 per box, Pittsburgh, for 14 x 20 100-lb. Coke Plates, making the price $3.49, delivered in New York. The Welsh market is 1½ pence lower, at 11 shillings 6 pence.

R. W. Conklin, who is well known in the metal trade as having been connected with E. F. Byrne, 100 William street, New York, has located in the Park Row Building, New York,

as selling agent for the Granby Mining & Smelting Company, miner and smelter of Lead and Spelter.

We are indebted to L. Vogelstein, representing Aron Hirsch & Sohn, Halberstadt, Germany, for the following figures showing the German consumption of foreign Copper for the months of January-July, 1904, as compared with the same period of time in 1903-1902:

	Tons. 1904.	Tons. 1903.	Tons. 1902
Import	64,334	49,263	47,765
Export	4,814	6,283	5,517
Consumption	59,520	42,980	42,248

New York.

NEW YORK, September 7, 1904.

Pig Iron.—The local Pig Iron market has been rather quiet during the past week. We continue to quote for Northern brands $14.75 to $15 for No. 1 Foundry, $14 to $14.50 for No. 2 Foundry and $13 to $13.50 for Gray Forge, at tidewater. Tennessee and Alabama brands are $13.25 to $13.50 for No. 2 Foundry and $12.75 to $13.25 for No. 3 Foundry.

Cast Iron Pipe.—Current business is very light and there is sharp competition for it. The contract for the first lot of 850 tons of high pressure service Pipe has not yet been definitely let. Carload lots of Cast Iron Pipe are quoted $25 to $25.50 per gross ton for 6 to 10 inch and $23.50 to $24 for 12-inch, at tidewater.

Steel Rails.—No new sales of any consequence are reported in this territory. The total sales to date this year are not quite 1,500,000 tons, which is a little more than one-half the tonnage of last year.

Finished Iron and Steel.—Little new work has been placed during the week. One lot of 2000 tons of Steel Plates has been purchased for caissons for the Pennsylvania tunnel. The Beam and Plate associations have reduced prices to a 1.40c. base, Pittsburgh. We quote: Beams, Channels, Angles and Zees, 1.54½c. to 1.75c.; Tees, 1.60c. to 1.75c.; Bulb Angles and Deck Beams, 1.64½c. to 1.90c. Sheared Plates in carload lots are 1.54½c. to 1.65c. for Tank, 1.64½c. to 1.80c. for Flange, 1.74½c. to 1.90c. for Marine and 1.74½c. to 2.25c. for Fire Box, according to specifications. Refined Bars are quoted 1.40c. to 1.50c. and Soft Steel Bars 1.45c. to 1.55c.

Carnegie Blast Furnaces Starting.—The Carnegie Steel Company of Pittsburgh has blown in No. 4 stack at the Ohio Works, Youngstown, Ohio. This is an entire new stack, 22 x 85 feet in size, and makes a total of four stacks at the Ohio Works, with a combined daily capacity of about 2000 tons. These four stacks are now in blast. This week the Carnegie Steel Company will start up No. 2 Furnace at South Sharon, Pa. Niles Furnace of the Carnegie Steel Company at Niles, Ohio, is being repaired and will probably be started as soon as repairs are finished.

Finished Steel Company.—The report that the plant of the Finished Steel Company, at Youngstown, Ohio, had shut down for an indefinite period is untrue. This plant is running right along, and has a fair amount of orders on hand. The Finished Steel Company manufactures polished shafting and special shapes, also piston rods, pump rods, bridge pins and screw rods.

Manufacturers of Waterloo, Iowa, combined in shipping their exhibits to the State Fair at Des Moines, making a train load of 15 cars, placarded with the names of the manufacturers and the goods shipped. The following manufacturers were represented in this train load of exhibits: Cascaden Mfg. Company, Frost Concrete Machinery Company, Wm. Galloway Company, Headford Bros. & Hitchins Foundry Company, Iowa Dairy Separator Company, Iowa Grinder & Steamer Works, Kelly & Taneyhill Company, J. S. Kemp Mfg. Company, Litchfield Mfg. Company, Perfection Harrow Cart Company, Stewart Cement Block Machine Company, Tallerday Steel Pipe & Tank Company, O. C. Vaughan Mfg. Company, Waterloo Artificial Stone Company, Waterloo Automatic Stone Machine Company, Waterloo Carriage Company, Waterloo Cream Separator Company, Waterloo Four-Horse Evener Company, Waterloo Gasoline Engine Company, Waterloo Motor Works, Waterloo Threshing Machine Company.

Iron and Industrial Stocks.

NEW YORK, September 7, 1904.

Despite the fact that London proved a persistant seller, and in the face of the reductions in prices of steel products, the market not only held up firmly, but scored steady advances throughout the entire line of iron and industrial stocks. The market was very firm and showed an advancing tendency throughout the entire week, but the greatest activity was shown and the most marked advances were scored to-day. The greatest interest was shown, of course, in the United States Steel issues, all of which advanced substantially, the common going up to 14. At 2 p.m. today the last quotations received on active stocks were as follows: Car & Foundry common 4½ bid, 4¾ asked, preferred 47 bid, 47½ asked; Locomotive common 22½, preferred 90½; Colorado Fuel 38¾; Pressed Steel Common 34, preferred 79; Railway Spring common 22½, preferred 80½; Republic common 7¾, preferred 43½; Sloss-Sheffield common 39, preferred 89½; Tennessee Coal 47⅛; United States Steel common 14, preferred 63½, new 5's 81.

The Pressed Steel Car Company of Pittsburgh has completed eight months of its fiscal year, and while the earnings of this year are not officially stated, it is said that there have been about enough to pay the dividend on the preferred stock. The earnings for the entire year will show a material falling off, as compared with two or three previous years.

The National Car Wheel Company of Pittsburgh has reduced its capital from $9,000,000 to $4,000,000.

Dividends.—Cambria Iron Company has declared the regular semiannual dividend of 2 per cent., payable October 1.

The American Shipbuilding Company, Cleveland, Ohio, has the contract for the construction of another passenger and freight vessel for the Anchor Line. The vessel will be 360 feet over all, 340 feet keel, 45 feet beam and 28 feet molded depth. It will have quadruple expansion engines, with cylinders 22, 31.5, 45 and 65 inch diameters and 42-inch stroke. Steam will be supplied by four Scotch boilers, 12.5 feet in diameter and 11.5 feet long, with 210 pounds pressure, and fitted with Howden draft. The vessel will have a capacity for about 3500 tons, in addition to the passengers, accommodations for which will be provided to the number of 275. The hull will be divided into nine water tight compartments by eight bulkheads, and will have a double bottom, with a water ballast capacity of 950 tons. The new vessel will probably not be placed in commission until June 15 next and will then make the run from Buffalo to Duluth.

The Standard Tin Plate Company, Canonsburg, Pa., is sending to the trade samples of three grades of its coke plates. One of the samples is that of the Pecon Best Cokes, another is that of Pecon Extra Cokes, carrying a little less metal than the Pecon Best Cokes, while the sample of Pecon Cokes is that of the company's regular coke plates. In addition to these grades of coke plates, the company manufactures charcoal bright plates of regular grades from 3 pounds to 7 pounds coating per base box, also a full line of terne roofing plates in coatings to suit the requirements of the buyers. A specialty of black plate is also made. The officers of the company are Joseph Underwood, president; W. H. Richards, general manager; J. V. H. Cook, treasurer, and Louis Follet, secretary.

The Carnegie Steel Company has formally declined to accede to the request of the merchants of Youngstown to grant another conference with the hoop mill strikers. I. W. Jenks, general superintendent of these mills, states that the offer made by the Carnegie Steel Company for the services of the old employees is final and will not be changed.

The Republic Iron & Steel Company may possibly follow the example of the Carnegie Steel Company and throw open its rolling mills at Youngstown, Ohio, in case a speedy settlement of the puddling and bar iron scales is not reached with the Amalgamated Association. It is said that the Republic company has selected Wayne McVeagh of Philadelphia for the third man on the Conciliation Board, while the Amalgamated Association desires Judge Grosscup of Chicago to serve.

Trade Publications.

Brake Shoes.—The American Brake Shoe & Foundry Company, Mahwah, N. J., has issued a catalogue especially compiled for the Louisiana Purchase Exposition and entitled "The Development of the Brake Shoe." A number of types of brake shoes are illustrated and described, including the steel lock brake shoe, which is stated to be desirable for use at modern high speeds.

Water Wheels.—The Abner Doble Company, San Francisco, has published a catalogue devoted to tangential water wheels. These are provided with patented ellipsoidal buckets. This characteristic and other mechanical features of the wheels are brought out in a series of illustrations. Space is also given to a needle regulating nozzle, water wheel housing and bearing and water motor completely equipped with the tangential wheel and needle nozzle. Tables of information concerning water wheel practice are included.

Anti-friction Metal.—The Magnolia Metal Company, 113-115 Bank street, New York, has issued a catalogue setting forth its line of anti-friction metals and their merits. The volume is freely illustrated, some of the cuts showing the results of tests. There is a good deal of generally interesting information contained in the pages.

Reinforced Concrete.—The Trussed Concrete Steel Company, Union Trust Company Building, Detroit, Mich., has sent out an interesting catalogue devoted to the Kahn system of concrete construction in which the company specializes. There are a number of full page illustrations showing the use of the Kahn system under severe test loads with varying spans, and also results of tests with concrete construction that had not been reinforced. A number of drawings give details of the construction. There are tables to show safe loads, spacing of bars, and column footings for column loads varying from 50,000 to 300,000 pounds.

Inclined Haulage.—The Wagner-Palmros Mfg. Company, Fairmont, W. Va., has sent out a catalogue showing its system of handling cars on inclines and slopes, in which is told in an interesting manner how the problem was solved of controlling cars on long or sharp pitch slopes. It is well illustrated by means of photographs of the cars in use and of the track, showing controlling and car lifting devices. A number of sectional views of the inclined system accompany the photographs.

Separators for Magnetic Minerals.—The Wetherill Separating Company, 52 Broadway, New York, has published a pamphlet devoted to its separators for weakly or strongly magnetic minerals. The work goes into some detail in its descriptions of the two machines and is suitably illustrated to make its meaning clear to the mining engineer.

"Graphite as a Lubricant."—The Joseph Dixon Crucible Company, Jersey City, N. J., has issued an interesting pamphlet entitled "Graphite as a Lubricant," and a booklet devoted to wire rope lubrication. The pamphlet first takes up the theory of friction and lubrication and the quality of graphite for lubricating purposes, together with a description of the flake form of the mineral mined by the company and its analysis. One chapter is devoted to practical experience with the Dixon graphite as a lubricant for stationary engines and pumps, marine engines, gas engine cylinders, ammonia and air compressors, locomotives, automobiles and in general mill practice. Another chapter deals with ways of feeding graphite. The pamphlet is finely illustrated. The treatise on wire rope lubrication will interest those who have to meet the problem of wear on elevating and transmission ropes, being given to the general subject as well as to Dixon's handy graphite rope dressing.

Condensing Apparatus.—The Alberger Condenser Company, 95 Liberty street, New York, has issued an attractive booklet, consisting largely of full page illustrations showing various types of condensers and vacuum and circulating pumps recently installed by the company in connection with steam turbines and reciprocating engines where high vacuum is a necessity. The Alberger Company's condensing apparatus is in successful operation in the largest steam turbine plant yet installed —15,000 horse-power. The new power house of the New York Subway is now being equipped throughout with the Alberger barometric and surface condensers.

Bearing Metals.—A neat piece of trade literature is put out by the Empire Metal Company, Syracuse, N. Y. It is in the form of a small end opening pamphlet. A flap in the cover has printed upon it "An open secret," and under the flap are the words, "The Superiority of the Empire Bearing Metals." The pages are cut with an overlapping index to locate any of the ten grades of metal made, according to the service to which they are best adapted. There are four grades for slow, medium, high and highest speeds for both medium and heavy pressure, and a grade for heavier pressure and high speed and one for heaviest pressure and highest speeds. These in order are designated as Car Box, Matchless, Electric, Copper Hardened, Rolling Mill, Extra, Genuine, Imperial, Hard Genuine and Silver Bronze. The distinctive characteristics of each grade are explained and the parts of machinery in which they are specially intended to be used.

Steam Engines.—The Ideal steam engines made by A. L. Ide & Sons, Springfield, Ill., are attractively portrayed in a catalogue recently received. Half-tone illustrations occurring on every alternate page give a general idea of the exterior of the complete engine and sections and details of its several special features. The facing pages contain text bringing out points to be noted in the illustrations. The first part of the book pertains to the Ideal tandem compound engine to be operated either condensing or noncondensing. The lubricating system is explained in connection with a sectional view of a small engine. The matter following deals with cross heads, connecting rods, governors, eccentrics, &c.

Electrical Apparatus.—The following have been received from the General Electric Company, Schenectady, N. Y.: A booklet giving interesting and instructive facts regarding type H transformers, which includes accounts of the construction and operation and considerable data which will be of value to those using the apparatus. Bulletin 4377 describes the Sprague-General Electric type M system of control, designed primarily for the operation of a train of motor and trail cars, coupled in any combination and the whole operated as a single unit from any controller on the train, although it may be used to advantage on individual equipments and locomotives. Several illustrations show the parts of the equipment separately, and one their association to indicate the manner of connecting. Bulletin 4379 deals with a new design of Thomson high torque induction meter. A general and detailed description is given with illustrations. Flyer 2126 is on the subject of punched clip spring switches with Edison fuse plugs for 125 and 250 volt service. These are made in double and triple pole pattern for branch or main line wiring. Flyer 2133 shows an alternating current buzzer to be placed in series with incandescent lamps located in obscure places to indicate when they are left burning. Price-lists 5122, 5127, 5128, 5129 and 5130 are on meridian lamps, lightning arresters, Edison street series incandescent lamps, fan motors and principal repair parts of form 4, 220-volt direct current multiple inclosed arc lamps.

Drilling and Boring Machines.—The new line of horizontal drilling and boring machines recently brought out by the Pawling & Harnischfeger Company, Milwaukee, Wis., is treated in a new catalogue recently received. There are four styles shown, Nos. 1, 2, 3 and 4, the latter one of which was described in *The Iron Age* of June 2, 1904. The Nos. 1 and 2 machines have their spindle carriages supported on two round columns secured by plates to the floor and ceiling. Nos. 3 and 4 are supported entirely from the floor by cast iron columns. They are regularly arranged for motor drive, and Nos. 1 and 2 for belt drive unless motor drive is specified. No. 1 is adapted for drilling holes from ¼ to 10 inches in diameter; No. 2 from ⅛ to 19 inches; No. 3 from ½ to 12 inches, and No. 4 from ¾ to 18 inches.

Automobiles and Motor Bicycles.—A collection of literature from the Pope Mfg. Company, Hartford, Conn., deals with the foregoing subjects. One is a catalogue of the Pope-Hartford automobile, models A and B, and another of the Columbia motor bicycle. Both go into descriptions of the important features with considerable detail. Two other booklets contain instructions for operating the Pope-Hartford and Pope-Tribune automobiles, respectively. Smaller pamphlets have the subjects, "Timely Hints for Motor Cyclists," "The Bicycle as a Therapeutic Agent," and "Why the Motor Bicycle?" the latter being a reprint from the *Bicycling World*.

Locomotives.—The Rogers Locomotive Works, Paterson, N. J., has prepared a booklet for distribution at the World's Fair, St. Louis, concerning its exhibit. It is attractive in every way, with a pleasing cover design for the outside and excellent half-tone engravings within. These show a view of the works; a view of the first locomotive built by the parent company, Rogers, Ketchum & Grosvenor; a view in the erecting shop, and typical examples of the latest product. These are of the Atlantic passenger, consolidation freight, ten-wheel passenger, and Mogul freight types. Opposite each of the illustrations are printed its dimensions, weights and specifications. These late models are in marked contrast to the pioneer locomotive, Sandusky, which was built in 1837. The history of this locomotive and of the Rogers works, which are included in the booklet, form very interesting reading.

Wood Pulleys.—The Reeves Pulley Company, Columbus, Ind., has recently issued a catalogue on wood pulleys, which is rather more pretentious than any that has heretofore been devoted to this subject exclusively. It contains several illustrations showing single and double arm construction; one or two details indicating the methods of joining; a view of the large pulley now on exhibition at the Louisiana Purchase Exposition, the diameter of which is 240 inches and the face 52 inches; a view of a wreck caused by the bursting of a cast iron pulley; a large wood pulley which was afterward put in to replace the demolished one, and numerous illustrations of smaller pulleys. Text running along with the illustrations is descriptive of the latter, and also contains valuable information. Tables at the back of the book give the approximate weights of wood split pulleys, price-lists of the extremely wide range of standard sizes, and rules for calculating the sizes and speed of pulleys.

NOTES.

The H. W. Johns-Manville Company, 100 William street, New York, has issued a new price-list of insulating materials, including mica commutator insulation for the various standard railway motors, oiled material, cut and uncut electrical mica, and a number of special insulations for special purposes.

The Yale & Towne Mfg. Company, Stamford, Conn., has issued an interesting and attractive folder devoted to its chain block exhibit at the St. Louis Exposition, which also contains a convenient little map of the grounds. Particular attention is given the Triplex, the Duplex and the Weston differential chain blocks. A description of this exhibit was given in *The Iron Age* of June 9, 1904.

The American Blower Company, Detroit, Mich., has sent out two miniature pamphlets, one on the A B C disk fans and the other on the A B C system of heating and ventilating; fans and

blowers, blast gates, the Morehead return trap, dry kilns, the A B C engines, &c. Price-lists are also included. The theory of much in a little is aptly applied in these diminutive catalogues.

The Emerson Electric Company, St. Louis, Mo., has sent out bulletin No 3055, devoted to forge and volume blowers, and giving illustrations, description and price-list.

The R. D. Nuttall Company, Pittsburgh, Pa., has issued a pamphlet devoted to stock hobs. It contains a complete list of hobs for cutting the teeth of worm gears. The publication is for the most part given up to complete tables showing the pitch, lead, pitch diameter, &c., corresponding to each hob number carried in stock.

Arthur Koppell, 68 Broad street, New York City, has issued supplement No. 2 to his catalogue No. 77, devoted to types of locomotives for narrow gauge use. The announcement is made that Mr. Koppell has arranged with the Baldwin Locomotive Works, Philadelphia, for this branch of the business.

The Asphalt Ready Roofing Company, 136 Water street, New York, has sent out an illustrated pamphlet calling attention to its Arrow brand asphalt ready roofing. A number of illustrations show the material in use.

P. Rieseck, Allegheny avenue and Rebecca street, Allegheny, Pa., is distributing a pamphlet showing the Rieseck wrought steel joist hanger for use in building construction, which is claimed to be less apt to break than a cast iron hanger. An inclosed circular deals with the Rieseck safety fire escape.

The Chicago Flexible Shaft Company, La Salle avenue and Ontario street, Chicago, Ill., in an attractive folder entitled "Are You Burning Money?" illustrates two forms of Stewart gas blast furnaces for tool makers' use. It also contains three testimonial letters.

The McInnes Steel Company, Corry, Pa., has brought out a booklet of the McInnes crucible tool steel. It contains table of sizes and prices, illustrations of various shapes of annealed die blocks, directions for working McInnes air hardening steel, price-list of forged milling cutter blanks, and several useful tables of weights and sizes of steel in various shapes.

The last issue of the United States Sprinkler *Bulletin*, issued by the General Fire Extinguisher Company, Providence, R. I., contains an extended comment on the recent Toronto fire, and the part played by automatic sprinklers in such buildings as contained them.

Warren Webster & Co., Camden, N. J., in a little pamphlet answer the question, "What will be done with the exhaust steam?" by describing the Webster system of heating. It sets forth its various advantages, such as no back pressure, saving of condensation, noiseless operation and ease of control.

The Buffalo Gasoline Motor Company, 1280 Niagara street, Buffalo, N. Y., is distributing at the World's Fair a leaflet giving a brief description of the Buffalo marine motors. These are made in sizes of 2, 5, 7½, 10, 15, 20, 25 and 40 horse-power, all of four-cylinder pattern. These are equipped with mechanically operated inlet valves and a new design of float feed carburetter attached directly to the motor.

The Wheeling Metal Mfg. Company, Wheeling, W. Va., describes a self lubricating anti-friction metal, made specially for high speed machinery bearings, in a folder recently issued giving directions for applying it.

The Electric Controller & Supply Company, Cleveland, Ohio, in bulletin 1009 describes type M. T. controllers for application to motors used in such trying service as the driving of rolling mills, the object being to protect the motor from damage due to sudden reversing or starting. In *The Iron Age* of Aug. 11 was printed a description of this controller and a planer direct driven by an electric motor with similar control.

The Scranton & Co. of New Haven, Conn., has recently issued special circular 37 on the Scranton power hammers. The first few pages are given to an illustrated exposition of the machine and its features, and the remainder of the book to testimonial letters and a partial list of users.

The Macgowan & Finigan Foundry & Machine Company, St. Louis, Mo., has issued a circular containing a description of the Perfect trip hammer. The main frame is made in one casting and occupies a floor space of 20 x 30 inches. The total hight is 5 feet 8 inches, it runs at from 300 to 325 revolutions per minute and requires but 1 horse-power. A leaflet from the same company deals with the House cold tire setter, a machine of interest to wheelwrights.

The Steam Appliance Company, Milwaukee, Wis., has issued three new circulars, one being a description of the action of the Triumph oil separator, another the Milwaukee separator and a third views of the apparatus in the service exhibit of the St. Louis Exposition made by this company. These include a 10-inch exhaust head, a 14-inch vertical Milwaukee high pressure steam separator, a 36-inch Triumph vacuum oil separator, a 7-inch high pressure hofizontal Milwaukee steam separator, a 9-inch exhaust head and a 5-inch high pressure horizontal Milwaukee steam separator.

A circular from the Mason Regulator Company, 158 Summer street, Boston, Mass., is descriptive of the Mason pump governor, which is capable of instantly and continually regulating any make of steam pump, running under any condition of load or variation of pressure. It is said to be to the direct acting steam pump what the ordinary ball governor is to the steam engine.

The Goldschmidt Thermit Company, Wall Street Exchange Building, New York City, has issued an interesting folder giving the whole of aluminothermics in condensed form. Thermit is used for welding iron and steel in any form, trolley rails, girders, shafts and sternposts, roll bosses, locomotive frames, &c., and for repairing castings and making butt welds in wrought iron or steel pipe. There are three special thermits: Titanium thermit for preventing blow holes in castings, white thermit for annealing spots in armor plate, and sinter thermit for hard soldering copper tubes.

Bulletin No. 8 from the Arnold Electric Power Station Company, Marquette Building, Chicago, Ill., contains a complete description of the Omaha shops of the Union Pacific Railroad Company, being a reprint from the *Railway Age*.

The July issue of Ryerson's "Monthly Journal and Stock List," issued by Joseph T. Ryerson & Son, Chicago, contains an interesting description of the Dayton self feed tube cutter.

The Baltimore Gas Machinery Company, 14 West Lexington street, Baltimore, Md., has recently printed a pamphlet of convenient pigeon-hole size containing an extended description of suction gas producers, which will be of no little value to those interested.

The Challenge Machine Company, Incorporated, Philadelphia, Pa., has recently issued a small mailing catalogue superseding all previous printed matter from the same concern. It illustrates and lists a line of all styles of grinding machinery for wet, tool and dry grinding, surface and plain grinding, &c. It is a line that covers the whole field of grinders not classed as special. They are made for either belt or motor connections.

Wyman & Gordon of Worcester, Mass., and Cleveland, Ohio, have issued an attractive booklet entitled "A Few Words About Electrical Matters," which is from the pen of Horace Wyman, inventor of textile machinery and one of the men who brought the business of the Crompton & Knowles Loom Works up to its present great proportions. The paper is intended for the reading of those who know little of the meaning of electrical terms, and is illustrated by comparisons with the head and fall of water, diagrams making the comparisons very easy to understand.

The Arnold Electric Power Station Company, engineer and contractor, Marquette Building, Chicago, Ill., has issued Bulletin No. 9. This is a description of the Baring Cross shops of the St Louis, Iron Mountain & Southern Railway, being a reprint of an article published in the *Railway and Engineering Review*.

The Roberts Machine Company, Schmidt Building, 339 Fifth avenue, Pittsburgh, Pa., describes the Ohio gas engines in a circular recently issued. Half-tones of the complete engine and details of the special parts are shown, with a brief description of each essential feature. The engine is self contained, may be operated with either gasoline or artificial gas, and is arranged so that the fly wheels clear the floor without elevating on a foundation. A circular letter goes with the folder which calls attention to the advantages of the engine.

The American Mfg. Company, 65 Wall street, New York, has issued an attractive illustrated pamphlet on the subject of rope. Specialties to which particular space is given are American transmission rope, American drill cables and ship hawsers and towing lines.

R. D. Wood & Co., Philadelphia, Pa., have prepared a booklet for distribution at the St. Louis Exposition on gas for power and fuel. Producer gas power plants are discussed at some length. Centrifugal pumping machinery for belt drive or direct connection to gas, steam or electric power; gas holders, cast iron pipe and special castings, high duty pumping engines and hydraulic fixed and portable riveters, punches and shears are other articles manufactured by this company to which allusion is made. An inclosed leaf invites the reader to visit the exhibits of this company in the Steam, Gas and Fuel Building and the Government Testing Plant, where producer installations are shown in operation.

The Northern Electrical Mfg. Company, Madison, Wis., is sending out leaflet No. 131, which illustrates a variety of motor driven ventilating and blowing equipments. These include a Connersville cupola blower, a Bayley fan, a vertical fan, an American Blower Company's fan, a Blackman fan and a Buffalo forge blower.

The Niles Bement-Pond Company, 136 Liberty street, New York, in its third issue of the "Progress Reporter" presents a special Louisiana Purchase Exposition number. The cover shows a fine view of Machinery Hall and the body of the book some 37 large half-tones of machinery which the Niles-Bement-Pond Company and Pratt & Whitney Company have on exhibition at the Fair. A short descriptive article is given of each machine. Among the more important shown are a 20-foot boring and turning and a heavy horizontal boring and drilling machine, described in *The Iron Age* of June 30, and a 10-foot heavy planer with air clutches, described in *The Iron Age* of July 14.

Official announcement has been made that the wire and wire nail mills and also the blooming mill of the Carnegie Steel Company, at South Sharon, Pa., will be placed in full operation on Monday, September 12, giving employment to 2000 men or more. Large quantities of wire and wire nails have recently been shipped from these works to extreme Western points, in order to take advantage of the low freight rates made by the Western roads, but which are to be withdrawn on September 8.

HARDWARE.

ONE of the recognized evils of the market is the extent to which goods are made and sold under special brands; that is, with brands other than those of the manufacturers, and which do not indicate who the manufacturers are. This practice, which, in some lines, is carried to an appalling extent, besides being obviously disadvantageous to the manufacturers, is in many ways detrimental to the interests of the trade and the public. Manufacturers have often expressed themselves as to the evils of this condition, and some of them have endeavored to avoid them so far as their own products are concerned. Individual efforts have not, however, succeeded in doing away with the practice, which is perhaps as prevalent at this time as ever. The matter is of such importance that the American Hardware Manufacturers' Association is giving its attention to it, and it promises to be a prominent subject for consideration at its November meeting at Atlantic City.

Each recurring holiday, as it has a special reason for its institution and observance, lays emphasis upon some principle or event which is regarded as having enough dignity and importance to be thus commemorated. The holiday which has just passed has its principal significance in the recognition of the organization of labor, the combining together in concerted and compact association of those identified with various trades and branches of industry. The setting apart of a day which shall be formally devoted to this recognition is designed as an expression of sympathy and good will toward such workers, while at the same time it gives to them an opportunity by parades and otherwise to emphasize their strength, and thus impress the public, if may be, with the wisdom of aiding them in their plans and yielding to their demands. The fact that the day is given so general an observance as to be practically a national holiday illustrates the detail and comprehensiveness of the movement which has given being to so many organizations and has, to a good extent, united them with a common spirit. While the establishing of the holiday may be in good measure credited to the politicians who want to curry favor with the labor element, its observance is expressive of public sympathy with the laboring class and a desire to promote their welfare in any reasonable way. The sincerity of this feeling is evidenced in the efforts of many high-minded employers, even at personal sacrifice, to advance the interests of their workmen and to promote their well being. The pity and the pathos of the situation is in the obstacles which the workmen themselves throw in the way of this humane and kindly purpose. The problem at best, far from being an easy one, is invested with difficulties sometimes insuperable by the course deliberately pursued by the workmen, and not infrequently through the organizations, the existence and methods of which are heralded and celebrated on Labor Day. It is a melancholy commentary on the methods adopted that industry is checked and enterprise discouraged by the unreasonable exactions of the labor element. It does not require a Labor Day parade to advise the pubiic of the power of organized labor. Idle plants, unfinished buildings, enterprises held back, unemployed workmen, intimidation and lawlessness, the public inconvenience and suffering, these tell the story without the aid of banners and brass bands.

Labor Day thus comes as a reminder to manufaqturers in every line, and with perhaps special emphasis to the manufacturers of Tools, Builders' Hardware and allied goods, that one of the great questions that awaits solution is the relation of organized labor to their industries and interests. Illustrations of the disastrous effect of exorbitant demands in the matter of wages and unreasonable restrictions as to production and the operation of plants are not far to find. The necessity for taking a broad view of the subject, so as not weakly to yield to dictation for the sake of present ease, and perhaps profit, at a cost which is sure to be reckoned with, should be recognized and acted upon by employers. This is a matter to which they can wisely give attention in their organized capacity, and it may be that the association in which so many prominent Hardware manufacturers are united can render further service to the trade by its suggestions and activities along this line.

Condition of Trade.

The Hardware market continues in the somewhat uncertain and not altogether satisfactory condition which has characterized it for a few weeks. There is little reason for complaint in regard to the general conditions of business, except that there is a relaxing of the demand which has kept factories more than busy for a long time, but, as a rule, merchants throughout the country are doing a fair trade, labor is well employed and agricultural conditions are certainly, taken all in all, full of promise for the future. The weakness which has developed in the Iron market and is likely to extend further in some branches has affected a good many articles which lie near the raw material, and there has been accordingly a settling in price in such lines. This naturally affects the rest of the market sympathetically and suggests caution in buying other goods, even though they are only remotely influenced. With Wire Nails, Wire, Bolts, Nuts, Heavy Hammers and heavy goods of various kinds selling at materially reduced prices, the trade are disposed to look upon the whole market as characterized by a weaker tone than really exists. The fact remains that the great body of miscellaneous Hardware, in which labor is the principal part of the cost, is practically unaffected by the lower prices that rule in Iron. Notwithstanding the influences which tend to repress orders, there continues to be a fair movement of business, and many of the jobbing houses refer to their July and August trade as about equal to that of last year. Stocks are being kept up to a good working level, and preparations are making for a fairly active, if not especially heavy, fall business.

Chicago.

There is little, if any, change in conditions or prices since our extended report of last week. The present low price on Wire Nails and Wire products seems to have been taken at last as the bottom, judging by the increased volume of orders received during the last few days. The freight war, by which the railroads serving territory west of the Missouri River enabled the leading maker of Wire products to invade the territory of the Colorado Fuel & Iron Company, has been patched up, and now that the desired tonnage is secured rates have been restored. The general buying movement in Shelf and Miscellaneous Hardware has been somewhat retarded by rumors of cuts in billets, plates, structural shapes and bars; but this is taken as only a temporary incident which will close as soon as prices are definitely fixed. More important than anything else is the complexion of the crop report, and the general warm wave and welcome showers throughout the corn belt, coupled with a better showing in wheat and oats than had been expected, is

doing more good than all other conditions can do harm. Builders' Hardware in Chicago is very active and a good business is also coming from the country.

NOTES ON PRICES.

Wire Nails.—The general situation in the Wire Nail market is substantially as reported in our last issue. Prices are pretty firmly maintained on the basis of $1.60 for carload lots, and $1.65 for less than carload lots, both f.o.b. Pittsburgh. There are rumors of a shading of these prices, but where this is done it is usually disguised in the charge for freight. There is also some irregularity in prices in certain territory where competition is most strenuous. Current prices are, however, too near the cost of production to make lower prices comfortable to the manufacturers. A good volume of business is doing, as many of the trade had permitted their stocks of Nails to run down, and are not now anticipating the development of much lower prices. The mills, however, are refusing to make contracts beyond 30 days at prices now ruling. The present condition of the market accentuates a tendency toward the doing away with an arbitrary differential between the prices to the jobbing and to the retail trade, inasmuch as the quotation of $1.60, Pittsburgh, is as a rule accessible to carload buyers of either class. The jobbers are selling Nails at figures that closely approximate those of the manufacturers, as they are desirous of retaining their business on this line even though transacted without profit. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Carload lots	$1.60
Less than carload lots	1.65

New York.—The past week, broken as it has been by a holiday, shows only a moderate volume of business. Interruption in building on account of labor difficulties, &c., has also had a perceptible effect on the demand. Quotations remain as before.

Chicago, by Telegraph.—The leading producer insists that the cut in price has resulted in a very large volume of orders, so great as to make it impossible to meet the wishes of many customers as to prompt delivery. When one considers that Nails, which have to go through so many varied and complex processes to reach their completion, are sold in Chicago at 15 cents a ton less than the price for heavy I-beams, which are only one remove from the ingot, it is not difficult to infer that the next move in Wire prices will be upward rather than downward. The prices of the American Steel & Wire Company are as follows, f.o.b. Chicago: Jobbers, carload lots, $1.75; retailers, car lots, $1.80; retailers, less than car lots, $2.

Pittsburgh.—Some of the mills report a slightly better demand for Wire Nails, which is probably due to the recent heavy reduction in prices. Heavy shipments of Wire Nails have been made to Chicago and other extreme Western points, owing to very low rates of freight that are in effect to these points, but which will be withdrawn on September 8. It is generally expected that a reduction of $4 a ton in price of Billets will be made this week, and in that event another reduction in price of Wire Nails is possible. We quote Wire Nails as follows: In carload and larger lots to jobbers, $1.60; carload lots to retailers, $1.65; less than carload lots to jobbers, $1.65; less than carload lots to retailers, $1.75.

Cut Nails.—The Cut Nail market feels the effect of the lower prices recently developed in Wire Nails, but notwithstanding this there continues to be a fair movement in a small way. The action of the Cut Nail Association, which will consider the matter of prices, is awaited with interest. While there is some unevenness in the market, carload lots may be quoted $1.60 to $1.65, f.o.b. Pittsburgh, for Steel and Iron, respectively, but there is little doubt that these prices are sometimes shaded.

New York.—The demand is moderate, owing not only to general but also to local conditions. Quotations remain substantially as before: Carloads on dock, $1.70 to $1.75; less than carloads on dock, $1.80; small lots from store, $1.85.

Chicago, by Telegraph.—Business in Cut Nails is, of course, badly crippled by the low prices for Wire Nails, and but little tonnage will be placed until the Cut Nail Association announces its programme. Meanwhile a good business is being booked for Puddled Iron Nails for flooring and roofing purposes, for which purposes the contractors are willing to pay a premium over the Steel Nail.

Pittsburgh.—Should a heavy reduction in price of Billets be made, which now seems probable, it may have the effect of causing the Cut Nail Manufacturers' Association, which is to meet on September 8, to make a reduction in price of Cut Nails. Demand is mostly for small lots, buyers not caring to place orders ahead in view of probable lower prices. We quote Steel and Iron Cut Nails at $1.60 in carloads and $1.65 in less than carloads. In exceptional cases and to some points of delivery it is said our lower price is shaded.

Barb Wire.—The low prices of Wire have to some extent stimulated the demand, but the trade is not buying as liberally as might be expected. Merchants are disposed to pursue a conservative course and are covering only their early requirements. The mills, too, are refusing to enter orders for future delivery at the ruling rates. There is a marked tendency toward the breaking down of differentials between the various classes of trade, but the regular schedule of prices is as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots	$1.75	$2.05
Retailers, carload lots	1.80	2.10
Retailers, less than carload lots	1.90	2.20

Chicago, by Telegraph.—The reductions in prices have resulted in an increase in orders, although there was a pause of several days after the cut until ordering began, buyers wishing to assure themesives that the bottom had been reached.

Pittsburgh.—The recent heavy reductions in prices of Barb Wire has not stimulated demand to any noticeable extent. Mills continue to book orders only for prompt shipment, refusing to make contracts. In case price of Billets is materially reduced there may be a further lowering in price of Barb Wire. It is said that differentials are not being adhered to in all cases. Prices are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots	$1.75	$2.05
Retailers, carload lots	1.80	2.10
Retailers, less than carload lots	1.90	2.20

Smooth Fence Wire.—The mills report an increased business under the stimulus of the lower prices, which removed to a certain extent the uncertainty which had before characterized the market. The trade, however, are not sure that still lower prices will not be developed, and orders are being held back, except for the early requirements of merchants. The action to be taken in regard to Billets is awaited with much interest, as it is not unlikely that materially lower prices for the raw material might result in further concessions on Wire and Wire products. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	$1.45
Retailers, carloads	1.50

The above prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12&12½	13	14	15	16
Annealed	Base.	$0.05	.10	.15	.25	.35	.45	.55
Galvanized	$0.30	.35	.40	.45	.55	.65	1.05	1.15

Chicago, by Telegraph.—Makers of Fence Wire have taken advantage of the new low prices on Fence Wire to buy heavily, ordering liberal tonnage into store rather than risk the possibility of an advance. Woven Wire Fence has declined in price as a consequence of the decline in Wire, and 74 per cent. discount is being named

in car lots and 73 per cent. in smaller lots at Western mills.

Pittsburgh.—There is only a fair volume of business, buyers placing orders for actual needs, the recent reduction in prices not having had the effect of stimulating demand. A cut in price of Billets is expected to be announced this week, and if this is made it may have the effect of causing another reduction in prices of Wire. We quote as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	$1.45
Retailers, carloads	1.50
Less than carloads	1.60

The above prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances.

Wire Cloth and Poultry Netting.—The trade are awaiting with interest the announcement of the prices on Screen Wire Cloth and Poultry Netting for next season. The general impression is that these prices will be substantially the same as last year, but the trade are naturally considering the effect on these products of the break in the Wire market as shown in the new prices for Wire Nails, Barb Wire, &c. It should be borne in mind, however, that similar concessions in price have not been made to manufacturers, who for some at least of their Wire are paying substantially the same prices as before. Pending the determining of prices for next season manufacturers are refusing to quote, though it is understood that in some cases orders have been placed.

Scythes.—The manufacturers of Scythes are issuing their prices for next season's business. The Scythe market is now under the control of a strong association, including, it is understood, all the leading manufacturers in the field. The result is a substantial increase in price.

Shot.—The Shot market continues steady and is under the substantial control of the United States Lead Company, which has taken over all the Shot towers except one.

Steel Snow Shovels.—The manufacturers of Steel Snow Shovels are holding prices pretty steadily, and these goods may be quoted in a general way at the following prices:

Long handle, per dozen	$2.75 to $3.00
D handle, per dozen	3.25 to 3.50

Bright Wire Goods.—The market for Bright Wire Goods is in a decidedly unsatisfactory condition and low prices are developed. The state of the market is indicated in the fact that leading Western jobbers are selling the goods to retail merchants at a discount of 90 and 40 per cent.

Merchant Pipe.—A revision of discounts for Steel Pipe has been announced by the leading manufacturers, involving a rearrangement of prices and a slight reduction. The new basing discounts are as follows for carload shipments:

	Black.	Galvanized.
⅛ to ¼ inch	72 %	56 %
⅜ and ½ inch	76 %	64 %
¾ to 6 inches	80 %	70 %
7 to 12 inches	75 %	60 %

It will be seen that the largest reduction has been made on ⅜-inch Galvanized and Black, the reduction being slight on other sizes.

Paints and Colors.—There are no new developments of special interest in Paints and Colors, trade as a whole being moderate. The volume of trade in August indicates an appreciable increase, as compared with July, which was light. Some makers refer to a general quiet in dry colors, while others say that trade in these lines is up to expectations, the indications being favorable for a good fall demand. August sales in Mixed Paints and Colors in oil have improved and are said to have exceeded any month since the opening of the year. In Metallic Paints the demand continues steady. Changes in quotations are not looked for during the balance of the year.

Oils.—*Linseed Oil.*—The market has remained steady during the past week, there apparently being less desire to sell at reductions in prices. It is believed purchasers have supplied themselves with Oil enough for their requirements in the immediate future, and so do not respond promptly to offers submitted for car lots for prompt delivery. Quotations are as follows: City Raw, in lots of five barrels or more, 45 cents per gallon; in lots of less than five barrels, 46 cents per gallon. There is a good jobbing trade for spot lots of State Raw Oil at 43 cents per gallon. There is the customary advance of 2 cents per gallon over Raw Oil for Boiled Oil.

Spirits Turpentine.—There is no improvement in Turpentine and in the absence of large buyers, and a sluggish demand from jobbers, together with lower Southern markets, prices in New York have receded, showing a loss of ½ cent. There appear to be no first hand sales traceable and only moderate jobbing lots have changed hands for current use at prices from 57 cents down to 56 cents for supplies in machine made barrels and ½ cent less for Oil barrels.

ADVICES FROM HARDWARE MERCHANTS IN REGARD TO CATALOGUE HOUSES.

Beginning to Draw Trade from the City.

A Western Merchant Writes: Catalogue houses are doing a good business in this section, especially in the line of Stoves and Buggies. While formerly the farmers were their best customers, they are now drawing a great deal of trade from the city as well.

Must Meet Catalogue House Prices.

From a Merchant in Indiana: We cannot say that we are seriously troubled with competition from catalogue houses. Our thought is that to meet competition of this character like price must be made by the seller, which, in our opinion, is the only solution of the problem, and when dealers come to this conclusion they will be given the preference, as a rule, and trade will be held at home.

People have the right to, and, as a rule, will buy where the price is the lowest, on like goods of like quality. It is the nature of the human family the world over. No legislature ever will, or ever can, enact a law that will stand, to change or govern this question, and, in our opinion, the more the matter is agitated publicly the more the catalogue house is advertised and the more it is benefited.

Jobbers Selling Catalogue Houses.

A Hardware Merchant Writes: I am bothered a great deal by catalogue houses, more on Buggies, Farm Bells and Steel Ranges than any other articles.

I think if we could get the jobbers to quit selling to them that they could not fill orders so quickly and people would get tired waiting; but as it is, the jobbers help fill in or rush orders, and in that way they keep up their trade.

Catalogue Business a Still Hunt.

From a Merchant in Indiana: Catalogue house competition is very troublesome. No one can tell how much business is thus lost, because, unless we see the average farmer in the act of getting his goods away from the freight house we never know how much stuff he is getting from the catalogue houses. They most all want credit at some time, and they do not like to let us know that they are sending their money to such houses and asking us to trust them. Nor is the farmer the only one who patronizes the catalogue houses. Their catalogues can be found in nearly every house in town, and, as some one has said, they are studied more than the family Bible. I see most everybody that writes on this subject advises the retailer to meet the price—which I have been doing for the last three years—on Guns, Ammunition, and nearly all staple goods; but when we do this we are losing money, because I have never been able to keep my expenses down to as low a percentage as we are compelled to sell goods for and compete with the catalogue houses.

A SCRAP BOOK OF HARDWARE ADS.

GEORGE J. BASSETT, advertising manager of the John E. Bassett & Co., New Haven, Conn., has published for the convenience of Hardware merchants reprints of some of its most effective advertisements and is offering the scrap book or portfolio for sale. His announcement describing it is as follows:

FOR the last five years we have advertised in the daily and weekly papers, changing our ads. once or twice a week throughout that entire period. All of the advertisements we have used were

written by a Hardwareman

of 18 years' experience in the General Hardware business, were written with the express purpose of selling Hardware and were not equally adaptable to groceries or dry goods, as are most of the "ready-made ads." They were original and pointed, and

people began to look for them

in the papers and referred to them in our store. During the last few years, and mainly as a result of our advertising, our

retail business has been doubled

and we have been compelled to increase our floor space and number of salesmen.

¶From the start we have kept a scrap book, in which each ad. has been pasted, and we have recently revised and reprinted

54 of our best advertisements

covering the most salable things in the Hardware line from January to December. They could be used in any General Hardware store almost without change—except in names and prices. Each ad. has been set up by an expert job printer so that both

typography and wording are original,

while several of them will suggest original methods of advertising and selling goods.

¶These 54 are the pick of over three hundred advertisements, which cost us on an average of $2 each.

¶Some of the lines advertised are as follows:

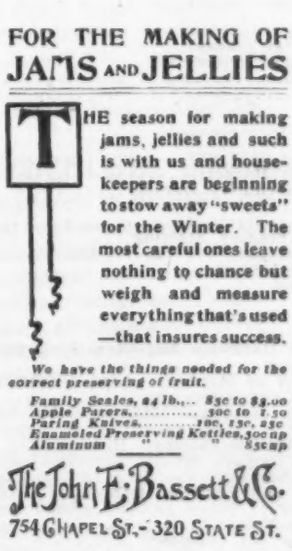
Pocket Knives	*Garden Tools*
Scissors and Shears	*Window Screens*
Razors and Strops	*Garden Hose*
Table Cutlery	*Lawn Mowers*
Carpenter's Tools	*Garden Seed*
Fishing Tackle	*Poultry Netting*
Revolvers	*Weather Strip*
Skates and Sleds	*Christmas Goods*

¶We will mail you the 54 ads. we have picked out on receipt of your check for $6—a small price when first costs are considered—and will agree to

sell them to no other dealer

in your town.

We have taken pleasure in calling attention repeatedly to the effectiveness of the advertisements of the John E. Bassett & Co., a number of which have been reproduced in our columns and another one of which is given herewith. Mr. Bassett certainly succeeds in making very effective and attractive announcements in regard to the goods to which he calls special attention, and we doubt not that many will be glad to avail themselves of the assistance to be obtained from the advertisements thus offered. We understand that Mr. Bassett is offering this Scrap Book of Ads. to only one merchant in a town.


FOR THE MAKING OF
JAMS AND JELLIES
THE season for making jams, jellies and such is with us and housekeepers are beginning to stow away "sweets" for the Winter. The most careful ones leave nothing to chance but weigh and measure everything that's used —that insures success.
We have the things needed for the correct preserving of fruit.
Family Scales, 24 lb.... 85c to $3.00
Apple Parers..... 30c to 1.50
Paring Knives..... 10c, 15c, 25c
Enameled Preserving Kettles, 30c up
Aluminum " " 85c up
The John E. Bassett & Co.
754 Chapel St.- 320 State St.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS *for catalogues, price-lists, quotations, &c., have been received from the following houses:*

FROM THE RALPH BROWN COMPANY, San Francisco, Cal., which started in business about a year ago, and is now carrying an extensive stock of Guns, Rifles, Athletic Goods, Cutlery, Dog Collars, Fishing Tackle, Revolvers and Shelf Hardware. The company requests that Hardware manufacturers who are not at present satisfactorily represented on the Pacific Coast send it catalogues, price-lists, &c.

FROM GAINESVILLE FURNITURE COMPANY, Ganesville, Fla., which has been incorporated with a capital of $50,000. The company will carry a complete stock of Hardware and Furniture.

FROM O. W. JONES, Shelby, Iowa, who is the successor to F. E. Hodgson in General Hardware, Stoves, Tinware, Furniture, &c.

FROM J. H. WILLIAMS, Glencoe, Okla., who has purchased the Shelf and Heavy Hardware business of W. A. Gorton.

FROM CENTRAL HARDWARE COMPANY, Independence, Kan., which has succeeded to the General Hardware, Paint and Sporting Goods business formerly carried on by A. L. Partridge.

FROM W. E. NEWCOMB, Nashua, Iowa, who has opened a retail business in General Hardware and Harness.

FROM G. E. RAUSCHER & SON, Jackson, Tenn., successors to Gooch & Edenton, who will conduct a retail business and do some wholesaling in Miscellaneous Hardware, Stoves, Tinware, Agricultural Implements, &c.

FROM FARGO HARDWARE COMPANY, Fargo, N. Dak., B. J. Howland succeeding U. S. Conn as proprietor, transacting a wholesale and retail business in Shelf and Heavy Hardware, Stoves, Paints, Oils, &c.

FROM L. N. SIMON, Goff, Kan., who has bought out the General Hardware and Furniture business formerly conducted by Charles B. Kennison & Brothers.

PRISON MADE GOODS.

From a Manufacturer in New Jersey: We are in receipt of an inquiry for goods for South America and are sorry to have to say that, being unable to compete with convict labor on them, we refused to entertain the order.

In view of the fact that shipments of convict made goods to some foreign parts would mean confiscation and jail for the offender if caught, it does seem strange to us that prohibition is put on home makers through this unfair competition and that our correspondent has to go back to London, England, shipments.

As we cannot make the goods in question for this country, and the foreign demand would not yet be enough to justify us in going to the expense of catering to it alone on these goods, you can at once see the ban placed on honest workmen by 15 to 35 cents a day jailbird labor. We have frequent experiences of this nature. It is a pity your New York laws are not studied by other communities.

THE AMERICAN HARDWARE MANUFACTURERS' ASSOCIATION

THE committee appointed to arrange the programme for the Convention of the American Hardware Manufacturers' Association at Atlantic City, November 16, 17 and 18, met in St. Louis Tuesday, the 6th inst. The meetings were held in the residence of J. C. Birge, president of the association. The programme was thoroughly discussed, and among the features decided upon it may be mentioned that an invitation has been extended to David M. Parry, president of the National Association of the Manufacturers of the United States, to address the Convention on Thursday afternoon, November 17, on a subject of his own selection. At the meeting in Atlantic City on Thursday morning, November 17, the American Hardware Manufacturers' Association will invite the National Hardware Association to confer with it on the matter of special brands and any other matters of interest which the jobbers may select. It is anticipated this question will be gone into very thoroughly, and some definite conclusions reached.

A. W. Douglas, secretary of Simmons Hardware Company, St. Louis, gave a dinner to the committee in the German restaurant in the World's Fair Grounds, on Tuesday evening. A very enjoyable menu was served and interesting talks followed the dinner. The following were present: A. W. Douglas, J. C. Birge, C. W. Asbury, N. A. Gladding, Geo. W. Corbin, E. B. Pike, W. M. Pratt, F. S. Kretsinger, H. B. Lupton, D. R. Lupton and F. D. Mitchell. An invitation was received from S. Norvell, president of the Norvell-Shapleigh Hardware Company, to participate in a dinner, but on account of the lack in time the committee was obliged to decline the invitation.

TRADE ITEMS.

THE STOWELL MFG. & FOUNDRY COMPANY, manufacfacturer of Hardware specialties, South Milwaukee, Wis., has absorbed the Midland Iron Works of Racine. The Midland Works manufactured a complete line of Adjustable Hangers for barn and factory doors, railway freight house doors, Fire Door Hangers and Fixtures and other specialties. R. A. Nourse, secretary of the Midland Iron Works, will be sales manager for the combined companies. The Stowell Company has nearly completed its modern office building and is about to enter upon a progressive campaign on its line of Hay Tools, Barn and Parlor Door Hangers and Side Wall Registers.

THE J. D. WARREN MFG. COMPANY, Chicago, announces that its new price-list, which is now on the press, describes many new designs, including a new Chicago "pattern" line, in which the cabinet and base are combined. Mr. Warren speaks of a number of important improvements made on his standard glass front cabinet, which he alludes to as a complete store keeper, inasmuch as it displays the goods, gives the price and enables the delivery of all styles of Hardware goods with the least possible loss of time. The new catalogue will describe a large line of newly designed cabinets and bases, including about 275 styles.

C. W. HARRISON, manager of the Sheffield (England) works of the A. J. Jordan Cutlery Company, St. Louis, Mo., has been visiting this company's store in St. Louis and spending some time at the World's Fair. He sailed for Liverpool last Saturday. Mr. Harrison is a practical and expert Cutlery man, having served his apprenticeship at the bench in all the different departments of Knife making in the great Cutlery centers of England.

J. G. PEASE has purchased Mr. Humphrey's interest in the Pease-Humphrey Hardware Company, Superior, Wis., whose business was a copartnership, and not incorporated, as the name might suggest. Mr. Pease will continue the business as before in the same location, collecting the accounts and assuming the liabilities.

A MAN who represents himself to be Chas. A. Gray and connected with Gray & Dudley Hardware Company, Nashville, Tenn., has recently called upon manufacturers in New York State and induced them to cash a draft for him. He is, however, we are advised, an impostor, as the company has no one connected with it of that name or answering the description of this man. He is said to be a pleasant appearing gentleman, about 5 feet 8 or 9 inches in hight, and about 50 years of age. We are requested to put other houses on their guard against him.

A SUIT brought by the Stover Mfg. Company, Freeport, Ill., to restrain the Arcade Mfg. Company, Freeport, Ill., from the manufacture and sale of its Gem Mops, which were regarded as infringing patents owned by the plaintiff, has been decided by the United States Circuit Court in the Northern district of Illinois in favor of the defendant.

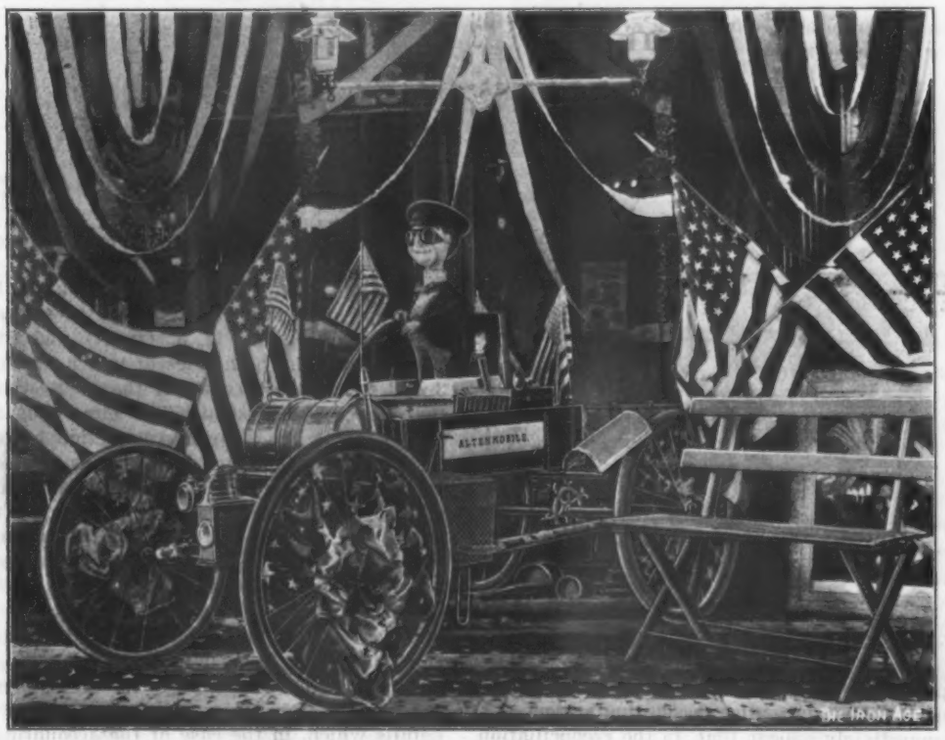
JOSEPH F. MCCOY, president of the Joseph F. McCoy Company, New York, and who is now making a tour abroad, was recently a guest at the Kaiserhof, Bad Wildungen, a watering place town in Western Germany.

CONTENTS.

	PAGE.
The New Hartford Automatic Screw and Forming Machines. Illustrated	1
The Worcester Pressed Steel Company	5
Niagara Power for Toronto	6
The Plant of the International Harvester Company at Hamilton, Ontario.—II. Illustrated	7
Status of the Uniform Bill of Lading	12
Success of Profit Sharing Plan of Pittsburgh Coal Company.	13
A French View of the English Iron Industry.—II	14
The New Baush Thirty-Inch Boring and Turning Mill. Ill.	16
Superheated Steam for Locomotives	16
The Smith Pneumatic Clutch Pulley. Illustrated	17
Large Ore Movement	17
An Improved Expansion Steam Trap. Illustrated	18
The Ellwood Power Company	19
Canada's Rail Market	20
Lake Ore News	22
Notes from Great Britain	23
The Molders at Cincinnati	25
Efficient Centrifugal Mine Pumps	25
National Metal Trades Association Notes	25
Steel Ties at Homestead Steel Works	25
Editorial:	
The Control of Prices	26
Chicago's Drainage Canal Water Power	26
All Meat "Unfair"	27
A New Tool Steel Company in the West	27
The Hoop Mill Situation at Youngstown	27
Mexican Railway and Industrial Notes	28
The Strength of Steel at High Temperatures	28
National Tube Company Improvements at McKeesport	28
Republic Mills Close Down	28
Personal	29
Car Works at Paris, Ill	29
Portsmouth Steel Company	29
Pig Iron Production Increasing Heavily	30
Iron Ores of Lake Champlain District	31
Manufacturing:	
Iron and Steel	31
General Machinery	32
Power Plant Equipment	32
Bridges and Buildings	32
Foundries	32
Fires	32
Hardware	32
Miscellaneous	33
The Iron and Metal Trades:	
A Comparison of Prices	34
Chicago	34
Cincinnati	36
Birmingham	37
Cleveland	37
Philadelphia	37
Pittsburgh	38
Chicago Machinery Market	40
The New York Machinery Market	41
Metal Market	42
New York	43
Carnegie Blast Furnaces Starting	43
Finished Steel Company	43
Iron and Industrial Stocks	43
Trade Publications	44
Hardware:	
Condition of Trade	46
Notes on Prices	47
Advices from Hardware Merchants in Regard to Catalogue Houses	48
A Scrap Book of Hardware Ads. Illustrated	49
Requests for Catalogues, &c	49
The American Hardware Manufacturers' Association	50
Trade Items	50
Automobile Window Display. Illustrated	51
Price-Lists, Circulars, &c	51
Romer Axe Company	51
Factory Cost and Business Methods. Illustrated	52
British Letter	54
Miscellaneous Note:	
Ford Auger Bit Company	55
Colonial Coffee Mills. Illustrated	55
The Wilcox-Cutter's Toggle. Illustrated	55
The Stay-Lit Candlestick. Illustrated	55
Double Stanchion Cow Ties. Illustrated	56
The Headson Pipe Cutter and Pipe Wrench. Illustrated.	56
Victor Folding Garment Hanger. Illustrated	56
Roe's Patent Angle Steel Pocket Tape. Illustrated	57
Newhouse Trap No. 81. Illustrated	57
The U. M. C. Short Range Shot Shells. Illustrated	57
Current Hardware Prices	58

AUTOMOBILE WINDOW DISPLAY.

THE automobile window display shown in the accompanying illustration was arranged by C. E. Ledyard, head clerk of N. C. Alten, hardware merchant at Lorain, Ohio, and was on exhibition during the week of July 4. The articles used in construction were as follows: Four bicycle wheels attached to a frame of ⅝-inch Wrought Iron Pipe and Fittings, with nickel plated Basin Supplies as axles. The body was a delivery cart, with two sets of springs, the seat, &c., in the cart being made of Bread Boxes and Pans. For lights there were two Bicycle Lamps, one Launch Headlight and one Brass Lantern in the rear. Steamers and Pot Covers formed the battery and a bent nickel-plated Pipe served as steering handle. Tin Horns were used as flag-holders, Toasters and Graters for fenders and Tin Plates for steps. A Chain Pump Reel was connected by a Bicycle Chain. The Chaffeur was a papier maché figure with movable head. The window was quite elaborately draped with American flags and bunting and the display attracted a great deal of attention.



Automobile Window Display.

PRICE-LISTS, CIRCULARS, &c.

Manufacturers in Hardware and related lines are requested to send us duplicate copies of catalogues, price-lists, &c., one copy for our Catalogue Department in New York and another for our London office; and at the same time to call our attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

HENRY B. NEWHALL 9-15 Murray street, New York: Circular illustrating Flush Sliding Doors, adapted to use in schools, churches, auditoriums, residences, &c., where a large opening is to be covered by sliding doors. When closed the Doors present a smooth, unbroken partition, and when open there is no obstruction on the floor, as no guide rail is used.

F. E. KOHLER & Co., Canton, Ohio: Price-list of Snow Shovels and Furnace Scoops. In this way a line of snow and general purpose Shovels and Furnace Scoops and Shovels is brought to the attention of the trade, with illustrations and list prices. This is a line of goods to which the company is giving attention, in addition to the variety of its articles, such as Antirattlers, Currycombs, Rakes, Garden Tools, &c., with which the trade are familiar.

THE STANDARD HARROW COMPANY, Utica, N. Y.: Circulars illustrating and describing the Standard Elevator Potato Harvester and the Standard Manure Spreader. The company calls attention to the new features and advantges of these machines.

THE WILCOX MFG. COMPANY, Aurora, Ill., has issued a catalogue describing its Rolling Shelf Ladders. The catalogue is 16 pages and cover, with photographic views of the company's plant. The catalogue describes in detail the Wilcox Trolley Ceiling Ladder, the Special Trolley Ceiling Ladder, the Leroy Shelf Ladder, the Handy Shelf Ladder, the Perfection Shelf Ladder, the Omega Ceiling Ladder.

CRESCENT FORGE & SHOVEL COMPANY, Havana, Ill.: Catalogue illustrating and describing the company's line of Crescent High Grade Agricultural Steel Shapes. A large variety of these goods is illustrated, to the quality of which the company refers. New goods are added from time to time in order fully to meet the requirements of the trade.

THE LUFKIN RULE COMPANY, Saginaw, Mich., and 280 Broadway, New York: A convenient catalogue showing the company's varied line of Measuring Tapes, Rules, &c., with illustrations and descriptive matter.

ROMER AXE COMPANY.

ROMER AXE COMPANY, Dunkirk, N. Y., has issued a new illustrated catalogue of its Axes, which shows single and double bit in an extensive variety of patterns, Boys' Axes, Hunters' Hatchets, Sportsmen's Hatchets, &c., and also its patent Saw Gummer. The pamphlet is elegantly printed, with fine illustrations which are photographic representations of their leading patterns. Reference is made to the fact that they have completed the twenty-eighth year of their career as manufacturers of Axes, and they allude to the admirable manner in which they are equipped to take care of the wants of the trade.

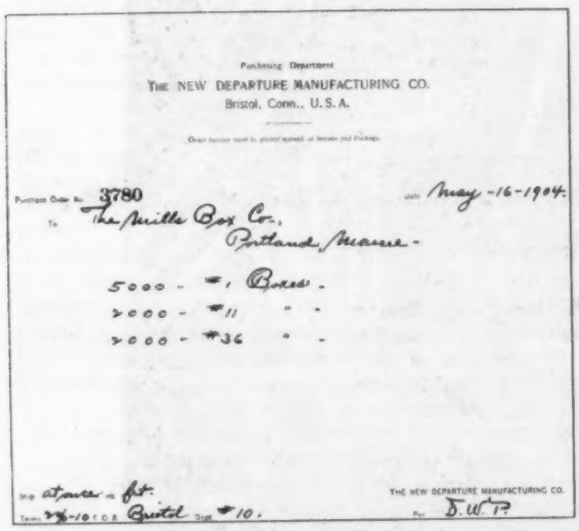
FACTORY COST AND BUSINESS METHODS.

PURCHASING DEPARTMENT SYSTEM OF NEW DEPARTURE MFG. COMPANY.

The careful and intelligent attention given to matters connected with the business management of the New Departure Mfg. Company, Bristol, Conn., is illustrated in the following description of the methods employed in their Purchasing Department.

THERE are two very necessary points for consideration in forming or installing an adequate purchasing system.

1. Accuracy, brevity and convenience, which are very important for the buyer; and,


Purchasing Department
THE NEW DEPARTURE MANUFACTURING CO.
Bristol, Conn., U. S. A.

Purchase Order No. 3780 Date May-16-1904.
To The Mills Box Co.
Portland, Maine.

5000 - #1 Boxes.
2000 - #11 " "
2000 - #36 " "

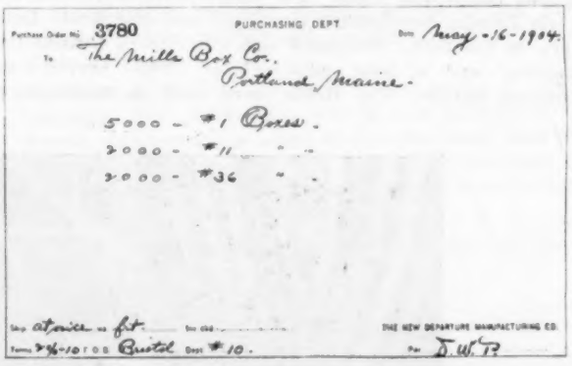
Ship at once via fst.
Terms 2%-10 F.O.B. Bristol Dept #10.
THE NEW DEPARTURE MANUFACTURING CO.
Per D. W. P.

Fig. 1.—Original Order for Goods.

2. The permanency of the record and its adjustment to the financial books and entire accounting system.

It will immediately appear that, in the reconciliation of all necessary details for both departments, careful thought must be exercised and all objectionable features from either point of view carefully eliminated, or, at least, made as unobjectionable as possible. Just such a process has evolved the system described below, and in no other way will a satisfactory purchase and accounting record be made to work acceptably. It must be borne in mind, however, that we are merely dealing with a system devised for a concern of medium size, where red tape is necessarily at a discount, and where dependence is placed (more than in larger concerns) on the personality of the clerical force which has the work in charge, this force working not merely with the routine and punctuality of a machine, but with more regard for the nicer essentials of the entire office system.

As requisitions appear from their many sources throughout the works or the office, orders are made out, as, for example, on form described by Fig. 1. The order is complete and concise in all its specifications as regards routing, terms and department for which goods are ordered. The form, Fig. 2, by using a carbon sheet, is duplicated for the use of the buyer and is inserted in a


Purchase Order No. 3780 PURCHASING DEPT Date May-16-1904.
To The Mills Box Co.
Portland, Maine.

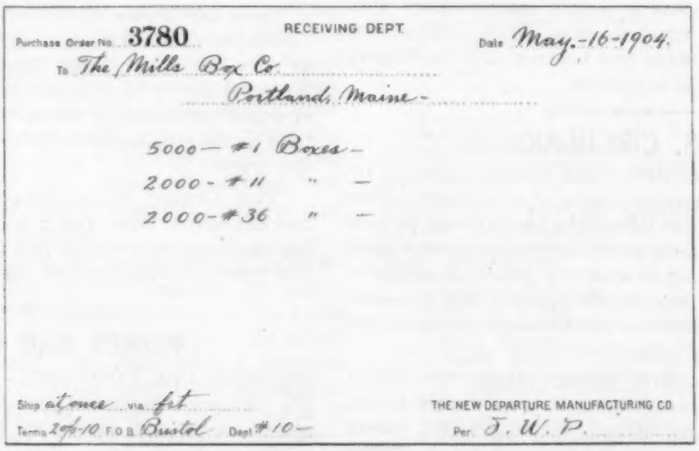
5000 - #1 Boxes.
2000 - #11 " "
2000 - #36 " "

Ship at once via fst.
Terms 2%-10 F.O.B. Bristol Dept #10.
THE NEW DEPARTURE MANUFACTURING CO.
Per D. W. P.

Fig. 2.—Duplicate of Original Order, for Purchasing Department.

vertical file conveniently near his desk. It is also by the same operation triplicated for the invoice and receiving clerk, as shown in Fig. 3. (front) and Fig. 4 (back). This third form, both sides of which are used for Figs. 3 and 4, at once becomes of the greatest importance to the entire office system. The buyer has numerous inquiries as to the state of completion of certain orders which his file indicates have not as yet been filled—at least, not entirely so. The clerk in charge has, as will be seen by referring to Fig. 4, an up to date record of the order. He can give all desired information to the buyer or to any other person who should necessarily be informed of the condition of these orders. The accounting department has many occasions to refer to these records, whether of incomplete orders or of completed orders (in case the order is completed the receiving department card will have been placed in the permanent file near the buyer's file), regarding price, amount of invoice, or other details which, in the case of the accounting department, must be as nearly correct as possible. In Fig. 4 the totals in the last column indicate the gross amount of invoices which may have items belonging to other orders, the invoice total making identification more certain.

The next detail of importance to the buyer, which is


Purchase Order No. 3780 RECEIVING DEPT Date May.-16-1904.
To The Mills Box Co.
Portland, Maine.

5000 — #1 Boxes —
2000 - #11 " —
2000 - #36 " —

Ship at once via fst.
Terms 2%-10 F.O.B. Bristol Dept #10—
THE NEW DEPARTURE MANUFACTURING CO.
Per D. W. P.

Fig. 3.—Triplicate, for Receiving Department.

of like, or perhaps greater, necessity to the accounting department, is the treatment of the invoice, which must be checked by the goods received (not the goods received by the invoice), and the following routine is gone through with with this invoice in order that all valuable information may be gleaned and recorded. The invoices, as re-

ceived, are turned over to the invoice clerk and stamped on the back with a rubber stamp, as shown in Fig. 5. They are then passed to the buyer for his approval, and he certifies to this approval by the signing of his initials in the first space on this form under the date and by inserting in abbreviated form, understood by the receiving clerk, the terms and any other conditions, such as transportation, &c. The invoice clerk then certifies to the extensions with his initials, and adds the date on which the goods covered by this invoice were received. After the goods have been received, the invoice is turned in to the accounting department, awaiting its due date for payment. Invoices after reaching the accounting department and being paid are recorded in a voucher record, and the voucher number inserted in the proper space on the back of the invoice. Before the invoice left the invoice clerk, who in this instance, it will be borne in mind, is the same person as the receiving clerk, all the information desired is transcribed from the invoice onto the invoice record, and the goods received are cross-checked from the invoice.

After payment of the invoice, which is only allowed after it has gone through this process of checking and rechecking so that no proper discount may be missed, or freight or other deductions overlooked, there is one more very important checking which must be carried out, and which depends not only upon the invoice and receiving clerk, but on the accounting department, and that is the distribution, from the accountant's point of view, of the goods covered by any particular invoice. This, of course, is a matter which deals very largely with factory practice, but it is necessary in many instances for the accountant to know not only what the goods are, but to what particular department they have been delivered; and for this information he depends almost entirely on the receiving department. Hence it comes about that the receiving department must exercise diligence in the distribution of goods received, in order that the accounting department may not charge to other than the proper departments goods on any particular invoice. The accounting department will then, by virtue of its experience, be more or less of a check on the correct distribution of certain items which might otherwise go astray; and, again, we find the purchasing forms and the accounting forms working hand in hand toward one and the same end, although the original tendency had been for the purchasing department and the accounting department to act independently, and one of them oftentimes in utter disregard of the necessities of the other.

GOODS RECEIVED			INVOICE RECORD						
Date	Quantity	ARTICLES	Check	Date	Price	F.O.B	Trans. Charges	Amount	
3/31	1000	#1 Bell Boxes	W.M.	3/31	13.50	B	✓	13	50
3/29	2000	#36 Auto Alarm Boxes	W.M.	3/29	12.15	"	✓	25	
4/19	1000	#1 Bell Boxes	W.M.	4/9	13.50	"	✓	20	13
4/14	1000	#11 " "	W.M.	4/14	13.25	"	✓	13	25
4/16	625	#1 " "	W.M.	4/16	13.50	"	✓	40	43
4/27	500	#1 " "	W.M.	4/27	13.50	"	✓		
"	1000	#11 " "		"	13.50	"	✓	37	13
5/4	450	#1 " "	W.M.	5/4	13.50	"	✓	26	46
5/6	1000	#1 " "	W.M.	5/6	13.50	"	✓	40	56
5/13	500	#1 " "	W.M.	5/13	13.50	"	✓	20	

Fig. 4.—Record of Goods Received; Reverse Side of Triplicate Order.

Date Rec'd..... JUL 6 1904
Order & Prices O. K.....
Terms..... F. O. B.....
Extensions O. K.....
Goods Rec'd .....
Voucher No.....

Charge to

Fig. 5.—Stamp for Checker's Initials.

The invoice is, after payment, stamped as in Fig. 6, and filed numerically in the proper folder of a vertical file, where it can be referred to at will. No receipt is taken, the check being all the receipt desired, as it is returned through the bank; hence all invoices are kept in the office, doing away with any possibility of loss in mail, &c., as might be were they returned with check to be receipted.

The filing of invoices in a vertical file, each house from whom purchases are made having a separate numbered folder with card index reference, is a most valuable way of handling them both for the buyer and the accountant.

PAID JUL 8 1904

Fig. 6.—Paid Stamp.

It has been frequently demonstrated that unless the different details of an office can be made to work harmoniously there will be found necessary at the end of the year, or of a certain accounting period, unravelings which might have been avoided had harmony prevailed all the time. The writer believes that in no department is this more true, whether in large or small factory, be there little or much "red tape," than in the purchasing department, which in the instance described above must necessarily work in unison with the factory and financial accountant.

PRIZE DISTRIBUTION SYSTEM OF STUART & PETERSON COMPANY.

With a view to cultivating a more general interest in the business, and to make the men feel that their cooperation is desired in the details of work under their care, the management of the Stuart & Peterson Company, manufacturer of Hollow Ware, Hardware Specialties, &c., Burlington, N. J., has recently adopted a method of prize distribution, which is explained in the following an-

nouncement. This experiment, which, it is hoped, will result successfully, was put in operation July 1:

Prize Distribution.

BURLINGTON, N. J., July 1, 1904.

To encourage advancement in work and to recognize co-operation and proper interest in the successful conduct of these works, we propose to offer prizes for the five best suggestions for the betterment of any work in any department of these works. The period to be covered will be July 1, 1904, to January 1, 1905, and the scope will be as follows:

Any suggestion which an employee considers of more value than the method at present employed will be required to reduce same to writing and deposit same in a box to be provided at the office.

The written suggestions will be submitted to a committee to be appointed at the end of the six months, and their award shall be final. The prizes will be awarded as follows:

For the best selection.....$25 in gold.
For the second best selection.....15 in gold.
For the third best selection..... 10 in gold.
For the fourth best selection..... 5 in gold.
For the fifth best selection..... 3.

The above are only contingent upon the adoption of same by this company in place of present methods.

BRITISH LETTER.

Offices of *The Iron Age*, HASTINGS HOUSE, NORFOLK ST., LONDON, W. C., August 27, 1904.

The Week's Hardware Trade.

RETURNING cheerfulness is a marked feature of the Hardware trade. The same remark hardly applies to the Cutlery department. Both on home and foreign account manufacturers are easier in their minds as to the future. Cast Hollow Ware sells more freely and there is an improved demand for Stamped and Enameled Goods, as also for Galvanized Bowls and Buckets. Tinware manufacturers are busy on Kettles, Saucepans, Tea Pots, Trays, Lanterns and similar goods. With the approach of autumn comes the annual demand for heating and lighting appliances, Stoves, Ranges, Chandeliers and Gas Fittings. There is more animation observable in the brass trades, the most prominent lines in this way being Door and Window Fastenings, Fenders, Kerbs, Fire Brasses, Coal Vases, Brass Cocks, Taps, Unions and Hydrants. An increasing turnover is reported in the silver and Britannia metal sections, chiefly in Spoons, Forks, Dish Covers and Tea and Coffee Sets. Builders' Ironmongery also shows some improvement, but the building trade generally is not in a good way owing to the marked reluctance to engage in much capital expenditure with stock values so low.

On overseas account exceptionally good orders are coming from South America, especially Brazil and Argentina. Exporters having a connection with Cuba speak more hopefully of that market. During the past few weeks quite a considerable bulk of general Hardware has been shipped there. The spread of the insurrection has checked our trade with Uruguay. If it continues long it will naturally have a depressing influence upon other South American countries. South African orders for Light Hardware continue disappointing, but an improvement has set in in the heavier lines.

Wanted on the Rand.

Among the various heavy and light metal articles wanted on the Rand, and in which there is keen competition between Great Britain, Germany and America, may be noted the following:

Stocks and Dies are largely purchased from America. The quality is alleged to be inferior to the Sheffield makes; there is no great advantage in price, yet the Americans are capturing the market, and the reason is the inattention of British firms to details. The American Stocks and Dies are neatly arranged in wooden boxes—very neatly arranged—and instead of having the tools scattered all over the workshop the engineer knows exactly where to find each article. It would pay British firms to import these boxes from the United States.

To give one illustration of the far reaching effects of improvement in manufacture, may be mentioned air hardening steel. The unequaled quality of high speed tool steel, due to the splendid efforts of recent years, has not only resulted in establishing Sheffield steel in a commanding position on the Rand, but it has brought back to Sheffield the trade in Twist Drills. A few years ago American Twist Drills were predominant on the Rand. To-day, thanks entirely to the quality of steel, Sheffield again leads the way.

Firms who are thinking of sending representatives out to South Africa would be wise to postpone the journey. Trade is absolutely stagnant at the present time. The fact that the gold output is increasing misleads many people into the belief that trade is improving. So far is this from being the case that unless the depression speedily ceases a financial crisis is imminent.

The New Weights and Measures Act.

A measure of considerable importance to Scale makers and dealers passed through Parliament on the last day of the session. Makers of Scales for the British market would do well to note the distinctions that have arisen in consequence of this measure, which comes into operation on January 1, 1905. The principal object of the bill is to bring about uniformity in the administration of the previous acts throughout the country, and to do away with the friction and inconvenience caused by instruments stamped in one county not being recognized in another. One result of this measure will be that the large Scale makers will be able to go ahead in the sure and certain knowledge that their Scales and other machines, once stamped, will be good for all parts of the country. It is certain that Birmingham Scale makers will heartily welcome the amendment of the law as soon as they realize that the anomalies of which they have long complained are to be abolished. In fact, it will benefit Birmingham more than any other district, for Scales are made in that city for all parts of the country, and more instruments are stamped in St. Martin's lane than in any other office in the kingdom.

Progress with the C.O.D. System.

It was fondly believed by a number of retail traders over here that the proposed C. O. D. system had fallen to the ground. This is clearly a mistake, judging by the annual report of the Postmaster-General, wherein he says:

> After careful perusal of numerous representations, I find advocates and opponents in agreement on one point—namely, that the system would be largely used by the public of this country; and the only important objection rests on the anticipation of a diversion of trade from provincial retail traders to firms which advertise extensively. The opponents do not, however, support this apprehension by evidence derived from actual experience in other countries, and numerous foreign post offices which I have consulted affirm that the system is in various ways useful to traders, and does not give rise to complaints on their part. In these circumstances I am by no means satisfied, so far as my inquiries have gone, that the apprehensions expressed by retail traders in this country afford sufficient cause for withholding a convenience from the community at large.

In view of this statement, the introduction of the C. O. D. system at an early date is clearly within the range of probability.

Japanese Imitations.

Where any foreign article has caught the native taste and come into general use, as in the case of Cigarettes, Clocks, Hanging Lamps, Bicycles, Cloaks, Cloth Caps, &s., the Japanese have almost invariably succeeded in turning out locally a cheap imitation suited to their wants, at any rate making up the goods in Japan, even if the material, as in the case of Cloth Caps, is imported. Some ten years ago a report was drawn up showing the industries on European lines in which native production competes with foreign import. A new edition would show a list greatly lengthened, and would even present instances of an incipient export to neighboring Far Eastern countries of Japan made imitations of European goods. For their metal ware the Japanese have always been remarkable and remarked. Their Silver Ware turned out for the foreign market shows more imagination than the Chinese, but they also fall into grooves. An idea is worked for all, sometimes more than, it is worth, and the work is wanting in solidity. Of late years the Japanese have

turned their attention to iron, producing small pieces of *repoussé* work with a dull surface which might be described as slightly frosted were it not that the blacker the metal is the better. The latest craze among the foreign community—it has not touched the Japanese fancy—is for Brass Ware, and it is curious, considering its quality of massiveness rather than daintiness, that it appeals peculiarly to the feminine taste. This ware, of which the best quality is produced at Tokyo and Ise, the cheaper varieties coming from Sendai and Kaga, is turned out in quantities. There are half a dozen shops in Yokohama which deal in nothing else. Old braziers are deservedly sought after. They are used as Coal Scuttles, and £4 will be paid for a good specimen. Old temple ornaments, brand new Flower Vases, Candlesticks and Bowls are obtainable in a great variety of forms. The sparsely ornamented expanse of smooth surface takes a high polish, but as a decoration for the dinner table Brass Ware has the defect of not according well with the table Silver, and, like *cloisonné*, it is too "brassy" for any use involving much handling.

MISCELLANEOUS NOTE.

Ford Auger Bit Company.

Ford Auger Bit Company, Holyoke, Mass., are now manufacturing a line of treenail augers of all sizes and lengths. These are made of a high grade of tool steel from patented dies under heavy triphammer blows, thus making the steel strong and tough. The tools are made with a coarse, medium and fine screw, and are said to bore easily. The company also carry in stock a full line of Ford dowel bits, which they have only made to order heretofore. The bits are carried in all sizes and half sizes, and great care has been taken to have them exact as to the size, length of twist and in all other particulars. They have the patent concave twist, the same as the Ford auger bit.

Colonial Coffee Mills.

The Logan & Strobridge Iron Company, New Brighton, Pa., branch of the National Novelty Corporation, 826 Broadway, New York, are putting on the market a new line of coffee mills, one of which is shown in the accompanying cut. Improved grinders, with which the mills are fitted, have a double adjusting screw for setting the mill for grinding very fine or coarse, as desired, and the

Colonial Coffee Mills.

grinders being made of especially hard material are referred to as lasting indefinitely. Several sizes and patterns of the mills are made, of attractive designs. The iron parts are all finished in Brighton gold lacquer bronze, which is alluded to as a brilliant and durable finish. The boxes are of hard wood, selected as to quality. The manufacturers state that in every part of the mills' make up quality has been the first consideration.

The Wilcox-Cutter's Toggle.

The Wilcox Mfg. Company, Aurora, Ill., is putting on the market the toggle shown in the accompanying cuts. In Fig. 1 the method of applying the device is shown. A hole is bored or chipped, after which the bolt, with toggle

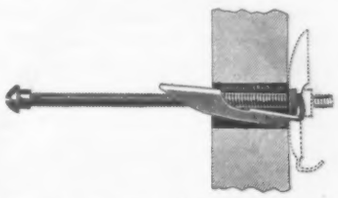


Fig. 1.—The Wilcox-Cutter's Toggle.

and nut, is inserted until the loose bar drops, as indicated by the dotted lines, when it is pulled back and the bolt or nut turned until it binds the work. A ½-inch hole is large enough to admit the 3-16-inch size of toggle, which it holds firmly, it is claimed, even in a ¾ or 1 inch hole. The device can be used with the nut or thread outside, or with the nut inside, exposing only the slotted head of the

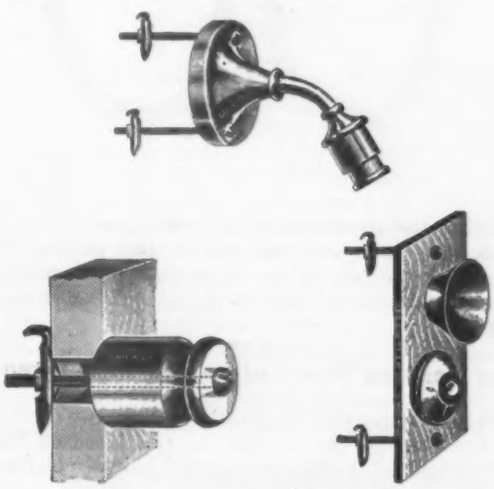


Fig. 2.—Additional Uses for Wilcox-Cutter's Toggle.

bolt. The toggle is designed to secure moldings, brackets, fixtures, &c., to any wall constructed of fire proof material, such as hollow tile, marble, metal, &c., or in any place where a nail or screw will not hold. The toggle is adapted to use by mechanics for fastening insulators, &c., as shown in Fig. 2, also for securing speaking tubes, letter boxes, marble slabs, trap pipes, &c.

The Stay-Lit Candlestick.

The candlestick shown herewith is japanned brown, and owing to the lamp chimney used in connection with it, the candle is not easily blown out by drafts of air. It

The Stay-Lit Candlestick.

is designed for general use and is especially handy for Summer cottagers. The manufacturers remark that the whole thing complete, including candlestick, candle and chimney, can profitably be retailed for 10 cents. It is manufactured by Sidney Shepard & Co., Buffalo, N. Y.

Double Stanchion Cow Ties.

The peculiar feature of the cow tie shown herewith lies in its having two post pieces, which allows an animal to be fastened in a crowded stable, confining it more and

Double Stanchion Cow Tie.

lessening the likelihood of its being hurt when lying down. The tie is the same as the Ohio pattern, except that it has two post pieces. It is made in American and Niagara patterns by the Oneida Community, Kenwood, N. Y.

The Headson Pipe Cutter and Pipe Wrench.

The accompanying illustrations show two new tools recently put on the market by the Headson Tool & Mfg. Company, Lafayette, Ind. The illustration of

Fig. 1.—The Headson Pipe Cutter.

the Headson pipe cutter in Fig. 1 was made from a photograph of a sectional model of the tool to show the details of its construction. The object of the cutter is to do away with the necessity of reaming the inside of the pipe to remove the burr formed by some types of wheel cutters. Furthermore, the pipe is cut squarely without crushing or otherwise damaging the material of the pipe. The cutter consists essentially of a high grade tool steel cutting tool, 0, fastened rigidly to the tool holder 4 by means of the cap and screws 7. The tool holder is free to slide back and forth in the holding block 3, its motion,

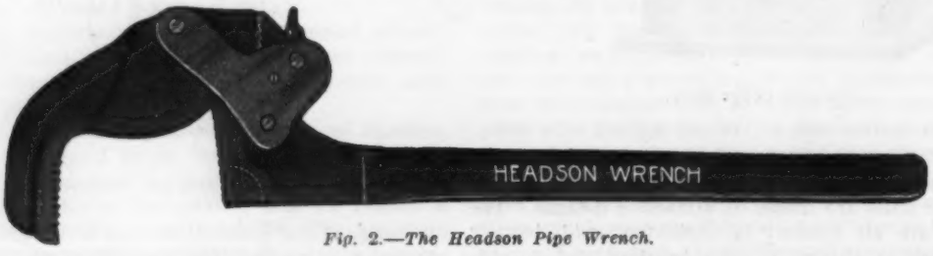


Fig. 2.—The Headson Pipe Wrench.

and hence the feed of the tool, being controlled by turning the handle 6, which is rigidly fastened to the feed rod. The tool is adjusted to the pipe by merely pushing forward on the handle until the antifriction rolls, which guide the cutting tool, come in contact with the pipe, after which a slight turn of the fluted handle 5 brings the pipe in firm contaact with the jaws 10 and the rolls. The cutter is then operated in the usual manner, the tool being gradually fed in by means of the feed rod, which passes through the hollow rod controlling the motion of the holding block 3. The cutter can be opened to its full width by releasing the split nuts at the rear of the main frame and pulling back on the handle. It is claimed that the cutter also saves a good deal of time, owing to the ease with which it can be adjusted and to the finished character of the work which it does. The Headson pipe wrench, shown in Fig. 2, is simple in construction and quick of adjustment. The handle is merely moved forward to adjust the jaws to any size pipe. A firm grip is obtained, and it is remarked that it is impossible to crush the pipe and that the wrench does not stick. The inserted jaw in the handle can be replaced if necessary, and all parts are made of drop forged steel and are interchangeable.

Victor Folding Garment Hanger.

The Taplin Mfg. Company, New Britain, Conn., and 155 Chambers street, New York, has just put on the mar-

Fig. 1.—Folding Garment Hanger, Open.

ket the Victor folding coat and garment hanger, here shown, as used and folded, for close packing or carrying about. It is made of 3-16-inch wire, except the center hook, which is of 5-32-inch material. Opened, the spread

Fig. 2.—Hanger Folded.

is 18 inches and hook is 6 inches long, the latter being recessed 1¼ inches, so as to avoid injury to coat collars, &c., by rubbing. Closed, it is 10 inches long over all, and weighs 5½ ounces. It is strong and finely made, polished, nickel plated, and packed one dozen in a pasteboard box.

Roe's Patent Angle Steel Pocket Tape.

In Fig. 1 of the accompanying cuts is illustrated an angle steel pocket tape being introduced by Justus Roe & Sons, Patchogue, N. Y., and designed for use by engineers, surveyors, contractors, masons, builders, &c., and for others in making all kinds of measurements. The device consists of a strong steel tape, ⅜ inch wide, in 25, 50, 75 and 100 feet lengths, graduated on one side only into feet, inches and eighths of an inch, or into feet, tenths and hundredths of a foot. It is inclosed in a hard leather case with nickel trimmings. One of the uses to which the tape can be put is laying out right angles much quicker, it is explained, than by any other method, and equally accurate, while the operator is unencumbered

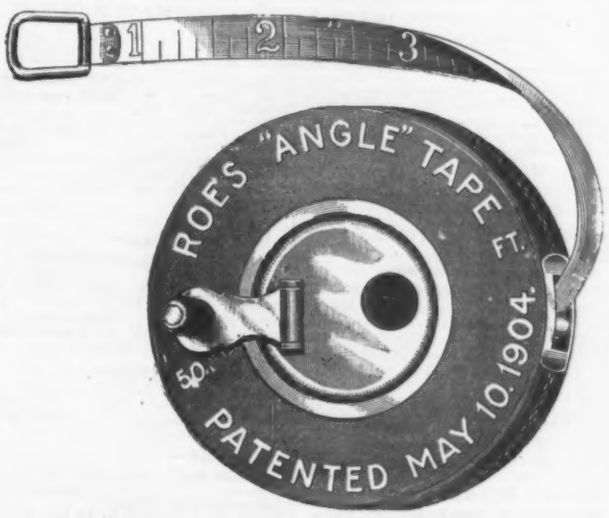


Fig. 1.—Roe's Patent Angle Steel Pocket Tape.

with surveying instruments or other tools. Its principle is the old trigonometrical formula that 6, 8 and 10 feet sides of a triangle secure a right angle. This formula is embodied in this tape by providing it with eyelets at 1, 9, 19 and 25 foot marks, the 9 and 19 foot marks being joints. To use the tape, as shown in Fig. 2, it is fastened at the starting point with a small marking pin or nail through the eyelet at figure 1 on the tape; then fastened at figure 9; then the 25-foot mark is placed over the starting point, and the operator, taking hold of the tape at the 19-foot mark, pulls the tape straight, resulting in a perfect right angle at the starting point. These tapes are also supplied marked inches, or tenths, on one side, and metric measure or links on the other side. The accuracy and good workmanship of all tapes are guaranteed.

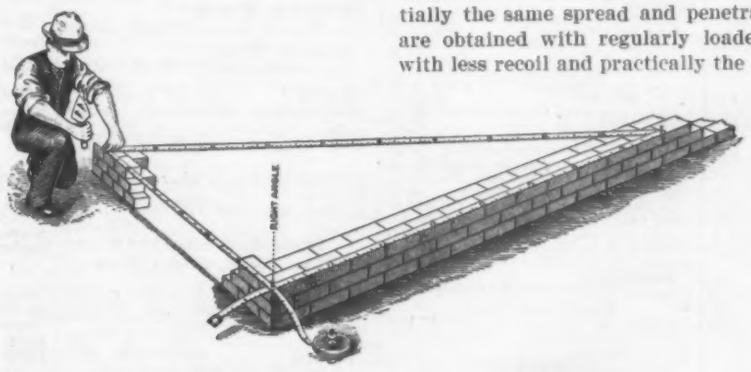
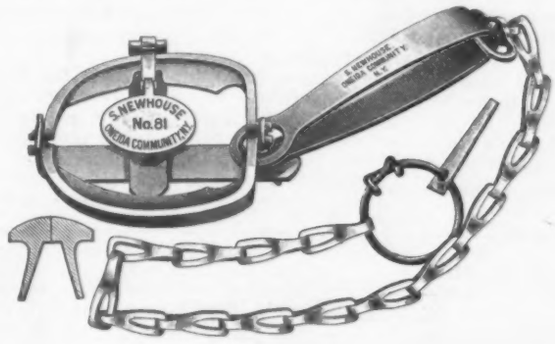


Fig. 2.—Squaring Foundation with Angle Tape.

THE SCATTERGOOD COMPANY, 1722 Venango street, Philadelphia, Pa., are putting on the market for manufacturers and merchants a line of perpetual record books, the special features of which are covered by their patents. Among these are the Perpetual Pay Roll and Time Record books, and also the Perpetual Trial Balance. The special features of these records are described in circulars which indicate their utility and convenience. The company are also manufacturing the Scattergood Mucilage Bottle.

Newhouse Trap No. 81.

The trap illustrated herewith is designed to overcome the difficulty professional trappers have encountered, as animals caught in the trap have escaped by gnawing off their legs. The webbed jaws with which the trap is supplied, a cross section of which is shown in the small cut to the left, are to prevent an animal gnawing its leg except at quite a distance below the meeting edges. It is claimed that the flesh left above the point of amputation and below the jaws will swell and make it impossible to pull the leg stump out of the trap. The trap corresponds in size with a regular Newhouse No. 1, and is made only in Newhouse quality. The trap has been patented, and is being put on the market by the Oneida Community, Kenwood, N. Y.



Newhouse Trap No. 81.

The U. M. C. Short Range Shot Shells.

The accompanying illustration shows a new type of shotgun ammunition, especially designed for brush and field shooting, at short ranges, with either choke or cylinder barrels. The shells secure, it is explained, substantially the same spread and penetration at 20 yards that are obtained with regularly loaded shells at 40 yards, with less recoil and practically the same velocity. This result is accomplished entirely with the wads, which have a cylindrical hole punched through their center, permitting the powder gases to enter the shot charge at its center, causing a uniform spread at short ranges. The company calls attention to the advantage of these shells for brush and field use as tending to avoid the mutilation of game at short range. Short range smokeless powder loaded shells are supplied in Arrow and Nitro Club brands only, and are being introduced by the Union Metallic Cartridge Company, Bridgeport, Conn., and 313 Broadway, New York.

The U. M. C. Short Range Shot Shells.

Current Hardware Prices.

REVISED SEPTEMBER 6, 1904

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer, are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓ @ 33⅓ & 10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1904, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—

Domestic, ₱ doz. $3.00 ..... 33⅓%
North's 10%
Zimmerman's—See *Fasteners, Blind.*

Window Stop—

Ives' Patent 35%
Taplin's Perfection 35%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anvils—American—

Eagle Anvils ..... ₱ lb 7¼@7¾¢
Hay-Budden, Wrought ..... 9@9¼¢
Horseshoe brand, Wrought ..... 9@9¼¢
Trenton ..... ₱ lb 9@9¼¢

Imported—

Peter Wright & Sons ..... ₱ lb 10½¢

Anvil, Vise and Drill—

Millers Falls Co., $18.00 ..... 15&10%

Apple Parers—See *Parers, Apple, &c.*

Aprons, Blacksmiths'—

Hull Bros. Co 30%
Livingston Nail Co 33⅓%

Augers and Bits—

Com. Double Spur ..... 75@75&5%
Boring Machine Augers ..... 66⅔@70%
Car Bits, 12-in. twist ..... 60@60&10%
Jennings' Pattern ..... 50&10&5@60%
Ford's Auger and Car Bits ..... 40&5%
Forstner Pat. Auger Bits 25%
C. E. Jennings & Co.:
No. 10 ext. lip, R. Jennings' list 25%
No. 30, R. Jennings' List ..... 40&7½%
Russell Jennings' ..... 25&10&2½%
L'Hommedieu Car Bits 15%
Mayhew's Countersink Bits 45%
Millers' Falls ..... 50&10&7½%
Ohio Tool Co.'s Bailey Auger and Car Bits ..... 40&10%
Pugh's Black 20%
Pugh's Jennings' Pattern 35%
Snell's Auger Bits 60%
Snell's Bell Hangers' Bits 60%
Snell's Car Bits, 12-in. twist ..... 60&10%
Wright's Jennings Bits (R. Jennings' list) 50%

Bit Stock Drills—

See *Drills, Twist.*

Expansive Bits—

Clark's small, $18; large, $26 ..... 50&10%
Clark's Pattern, No. 1, ₱ doz., $26;
No. 2, $18 ..... 50&10%
Ford's, Clark's Pattern ..... 50&10&6 %
C. E. Jennings & Co., Steer's Pat. 25%
Swan's 60%

Gimlet Bits—

Common Double Cut ..gro. $3.00@3.25
German Pattern ..... gro. $4.50@4.75

Hollow Augers—

Bonney Pattern, per doz. $10.00@11.00
Ames ..... 25&10%
New Patent ..... 25&10%
Universal 20%
Wood's Universal 25%

Ship Augers and Bits—

Ford's 40%
C. E. Jennings & Co.:
L'Hommedieu's 15%
Watrous' ..... 35&5%
Ohio Tool Co.'s 40%
Snell's 40%

Awl Hafts, See *Hafts, Awl.*

Awls—

Brad Awls:
Handled ..... gro. $2.75@3.00
Unhandled, Shouldered. gro. 63@66c
Unhandled, Patent ..... gro. 66@70c
Peg Awls:
Unhandled, Patent ..... gro. $1@1.10
Unhandled, Shouldered. gro. 65@70c
Scratch Awls:
Handled, Common .. gro. $3.50@4.00
Handled, Socket .. gro. $11.50@12.00
Hurwood 40%

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—

Single Bit, base weights (up to 3¼ lb.)
First Quality ..... $6.25@6.50
Second Quality ..... $5.75@6.00
NOTE.—Heavier Weights add Extras as per regular schedule.

Axle Grease—See *Grease, Axle*

Axles— *Iron or Steel*

Concord, Loose Collar ..... 4@4½¢
Concord, Solid Collar ..... 4½@5¢
No. 1 Common ..... 3½@3¾¢
No. 1½ Com. New Style ..... 3¾@4¼¢
No. 2 Solid Collar ..... 4¼@5¢
Nos. 7, 8, 11 and 12 ..... 75@75&5%
Nos. 13 to 14 ..... 70&10@75&5%
Nos. 15 to 18 ..... 65&10@60&10&10%
Nos. 19 to 22 ..... 70&10@75%

Boxes, Axle—

Common and Concord, not turned .. lb. 4½@4¼¢
Common and Concord, turned ..... lb. 5@5¼¢
Half Patent ..... lb. 9@9½¢

Bait— Fishing—

Heudryx:
A Bait 30%
B Bait 2½
Competitor Bait ..... 20&5%

Balances— Sash—

Caldwell new list 50%
Pullman ..... 50&10@60%

Spring—

Spring Balances ..... 60@60&5%
Chatillon's:
Light Spg. Balances ..... 40&10%
Straight Balances 40%
Circular Balances 50%
Large Dial 30%

Barb Wire—See *Wire, Barb.*

Bars— Crow—

Steel Crowbars, 10 to 40 lb., per lb .. 5@5½¢

Towel—

No. 10 Ideal, Nickel Plate ..... ₱ gro, $8.50

Beams, Scale—

Scale Beams, List Jan. 12, '03 ..40&10%
Chattillon's No. 1 ..... 30%
Chattillon's No. 2 ..... 40%

Beaters— Carpet—

Holt-Lyon Co.:
No. 12 Wire Coppered ₱ doz $0.85;
Tinned $1.00
No. 11 Wire Coppered ₱ doz. $1.10;
Tinned $1.20
No. 10 Wire Galvanized ..... ₱ doz. $1.75
Western W. & G. Co.
No. 1 Electric ..... ₱ gro. $7.80
No. 2 Buffalo ..... ₱ gro. $9.00
No. 3 Perfection Dust ..... ₱ gro. $8.00

Egg—

Holt-Lyon Co.:
Holt, No. A, Japanned ..... ₱ doz. $1.20
Holt, No 1, Tinned ..... ₱ doz. $1.50
Holt, No. B, Japanned ..... ₱ doz. $2.00
Holt, No. 2, Tinned ..... ₱ doz. $2.25
Lyon, No 2, Japanned ..... ₱ doz. $1.25
Lyon, No. 3, Japanned ..... ₱ doz. $1.50
Taplin Mfg. Co.: ₱ gro.
No. 60 Improved Dover $6.00
No. 75 Improved Dover $6.50
No. 100 Improved Dover $7.00
No. 102 Improved Dover, Tin'd $8.50
No. 150 Improved Dover, Hotel $15.00
No. 152 Imp'd Dover, Hotel, T'd $17.00
No. 200 Imp'd Dover Tumbler $8.50
No. 202, Imp'd Dover Tumbler, Tin'd. $9.50
No. 300, Imp'd Dover Mammoth, ₱ doz $25.00
Western, W. G. Co., Buffalo $7.00
Wonder (S. S. & Co.) ..... ₱ gro. net, $6.00

Bellows—

Blacksmith, Standard List .. 75@75&5%

Blacksmiths'—

Inch..	*30*	*32*	*34*	*36*	*38*	*40*
Each	*$3.50*	*3.75*	*4.25*	*4.80*	*5.35*	*6.15*

Extra Length:
Each ..$4.00 4.55 5.10 5.60 6.40 7.50

Molders—

Inch	*10*	*12*	*14*
Doz	*$8.50*	*10.00*	*13.00*

Hand—

Inch	*6*	*7*	*8*	*9*	*10*
Doz	*$4.25*	*4.50*	*5.00*	*6.50*	*7.75*

Net Prices.

Bells— Cow—

Ordinary goods ..... 75&5@75&10%
High grade ..... 70&10@70&10&5%
Jersey ..... 75&10%
Texas Star 50%

Door—

Abbe's Gong 45%
Barton Gong 50%
Home, R. & E. Mfg. Co.'s ..... 55&10%
Lever and Pull, Sargent's ..... 60&10&10%
Trio Gong ..... 50&10&30&10&5%
Yankee Gong 55%

Hand—

Hand Bells, Polished, Brass ..... 60& @60&10%
White Metal 60%
Nickel Plated ..... 50@50&5%
Swiss ..... 60@60&7½%
Cone's Globe Hand Bells ..... 33⅓@35%
Silver Chime ..... 33⅓@35%

Miscellaneous—

Farm Bells ..... lb. 2¼@2½
Steel Alloy Church and School ..... 50&10@60&5%
American Tube & Stamp'g Co. Gongs .. 75%
Table Call Bells ..... 50@50&10%

Belting— Rubber—

Agricultural (Low Grade) .. 75@75&5%
Common Standard ..... 70@70&10%
Standard ..... 65@70%
Extra ..... 60&5@60&10%
High Grade ..... 55@55@50&10%

Leather—

Extra Heavy, Short Lap ... 60@60&5%
Regular Short Lap 60&10@60&10&10%
Standard ..... 70@70&5%
Light Standard ..... 70&10%
Cut Leather Lacing ..... 60&10%
Leather Lacing Sides, per sq. ft .. 18c

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—

Detroit Perfected Tire Bender 40%
Green River Tire Benders and Upsetters 30%
Detroit Steddard's Lightning Tire Upsetters, No. 1, $4.25; No. 2, $7.25; No. 3, $10.50; No. 4, $16.5; No. 5, $30.50.

Bicycle Goods—

John S. Leng's Son's 1902 list:
Chain 50%
Parts 50%
Spokes 50%
Tubes 60%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—
See *Augers and Bits.*

Blocks— Tackle—

Common Wooden ..... 70&10@75&5%
Hollow Steel Blocks, with Ford's Patent Sheaves ..... 50&10%
Lane's Patent Automatic Lock and Junior 30%
Stowell's Novelty, Mal. Iron ..... 50&10%
Stowell's Self Loading 60%
See also *Machines, Hoisting.*

Boards, Stove—

Zinc, Crystal, &c. ..... 30&10@40&10%

Boards, Wash—

See *Washboards.*

Bolts—

Carriage, Machine, &c.—

Common Carriage ..... 75@.....%
Phila. Eagle, $3.00 list May 24, '99 ..... 80&10%
Bolt Ends, list Feb. 14, '95 ..... 75@.....%
Machine ..... 75@75&5%
Machine with C. & T. Nuts ..... 70&5@.....%

Door and Shutter—

Cast Iron Barrel, Round Brass Knob:

Inch	*3*	*4*	*5*	*6*	*8*
Per doz	*$0.26*	*.30*	*.39*	*.47*	*.65*

Cast Iron Spring Foot:

Inch	*6*	*8*	*10*
Per doz	*$1.00*	*1.25*	*1.75*

Cast Iron Chain, Flat, Japanned:

Inch	*6*	*8*	*10*
Per doz	*$0.75*	*1.05*	*1.30*

Cast Iron Shutter, Brass Knobs:

Inch	*6*	*8*	*10*
Per doz	*$0.87*	*.80*	*1.00*

Wrt Barrel, Jap'd .75&10@75&10@10%
Wrt " Bronzed .. 50&10@50&10@10%
Spring ..... 70&10@70&10@10%
Wrt. Shutter .. 50&10@50&10@10&5%
Wrt. Square Neck .. 70&10@70&10@10%
Wrt. Square .. 66⅔&10@66⅔&10@10%
Ives' Patent Door 60%

Stove and Plow—

Plow ..... 65&10@.....%
Stove ..... 30&5@30&10&5%

Tire—

Common 72½%
Norway Iron 80%
American Screw Company:
Norway Phila., list Oct. 16, '04 ..... 80%
Eagle Phila, list Oct. 16, '04 ..... 82½%
Bay State, list Dec. 28, '99 ..... 72½%
Franklin Moore Co.:
Norway Phila, list Oct. 16, '04 .... 80%
Eagle Phila., list Oct. 16, '04 ..... 82½%
Eclipse, list Dec. 28, '99 ..... 72½%
Russell, Burdsall & Ward Bolt & Nut Co.
Empire, list Dec. 28, '99 ..... 72½%
Norway Phila., list Oct. '04 ..... 80%
Upson Nut Co.:
Tire Bolts 72½%

Borers, Tap—

Borers Tap, Ring, with Handle:

Inch	*1¼*	*1⅜*	*1¾*	*2*
Per doz	*$4.30*	*5.00*	*5.75*	*7.25*
Inch			*2¼*	*2½*
Per Doz			*$8.65*	*11.50*

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.65; No. 3, $2.50 each 25%

Boxes, Mitre—

C. E. Jennings & Co 30%
Langdon ..... 15&10%
Perfection ..... ₱ doz., $30.00
Schatz 40%

Braces—

Common Ball, American .. $1.15@1.25
Barber's ..... 50&10&10@60&10%
Fray's Genuine Spofford's 60%
Fray's No. 70 to 120, 81 to 123, 207 to 414 ..... 60%
C. E. Jennings & Co ..... 50&5%
Mayhew's Ratchet 60%
Mayhew's Quick Action Hay Patent .. 50%
Millers Falls Drill Braces ..... 25&10%
P., S. & W. Co. Peck's Patent 60&10@65%

Brackets—

Wrought Steel ..... 80&10@....%
Bradley's Wire Shelf:
Full cases ..... 80&10&10%
Broken cases ..... 80&10%
Griffin's Pressed Steel 80%
Griffin's Folding Brackets ..... 70&10%
Stowell's Cast Shelf 75%
Stowell's Sink 50%
Western, W. G. Co., Wire ..... 60&10%

Bright Wire Goods—See *Wire and Wire Goods.*

Broilers—

Western, W. G. Co 80%
Wire Goods Co ..... 75@75&10%

Buckets, Well and Fire—

See *Pails*

Bucks, Saw—

Hoosier ..... ₱ gro. $36.00

Bull Rings—See *Rings, Bull.*

Butts— Brass—

Wrought list Sept., '96 ..... 20@30%
Cast Brass, Tiebout's 50%

Cast Iron—

Fast Joint, Broad ..... 50@50&10%
Fast Joint, Narrow ..... 50@50&10%
Loose Joint ..... 70&5@70&10%
Loose Pin ..... 70&5@70&10%
Mayer's Hinges ..... 70&5@70&10%
Parliament Butts ..... 70&5@70&10%

Wrought Steel—

Table and Back Flaps 75%
Narrow and Broad 75%
Inside Blind ..... 75&10%
Loose Pin 75%
Loose Pin, Ball and Steeple Tip 80&20%
Japanned, Ball Tip Butts 70&10%
Bronzed Wrt. Nar. and Inside Blind Butts ..... 55&10%

Extra 10@10&10%

Cages, Bird—

Hendryx, Brass:
3000, 5000, 1100 series 5%
1200 series 33⅓%
200, 300, 600 and 900 series ..... 40&10%
Hendryx Bronze:
700, 800 series ..... 40&10%
Hendryx Enameled ..... 40&10%

Calipers—See *Compasses.*

Calks, Toe and Heel—

Blunt, 1 prong ..... per lb. 4@4¼¢
Sharp, 1 prong ..... per lb. 4¼@4¾¢
Gautier, Blunt ..... 4@4¼¢
Gautier, Sharp ..... 4½@4¾¢
Perkins', Blunt Toe ..... ₱ lb 3.65¢
Perkins', Sharp Toe ..... ₱ lb 4.15¢

Can Openers—See *Openers, Can*

Cans, Milk—

	5	8	10 gal.	
Illinois Pattern,	$1 35	1.85	2.05	each.
New York Patt'rn	1.50	2.20	2.45	each.
Baltimore Patt'rn	1.50	2 20	2.45	each.
Dubuque	1.35	1.60	1.75	each.

Cans, Oil—

Buffalo Family Oil Cans:

3	5	10 gal.
$48.00	60.00	120.00 gro., net

Caps—Percussion—

Eley's E. B. 60c
G. D ..... *per M* 34@35c
F. L. ..... *per M* 40@45c
G. E. ..... *per M* 50@55c
Musket ..... *per M* 62@63c

Primers—

Berdan Primers, $2.00 per M. ..20c&7½
B. L. Caps (Sturtevant Shells) $2.00 per M. 20%
All other primers per M.$1.55@$1.60

Cartridges—

Blank Cartridges:
32 C. F., $5 50 ..... 10c&5%
38 C. F., $7 00 ..... 10c&5%
22 cal. Rim, $1 50 ..... 10c&5%
32 cal. Rim, $2.75 ..... 10c&5%
B. B. Caps, Con. Ball Swgd. *$1 00*
B. B. Caps, Round Ball *$1.50*
Central Fire 25%
Target and Sporting Rifle ..... 15c&5%
Primed Shells and Bullets ..... 15c&10%
Rim Fire Sporting 50%
Rim Fire, Military ..... 15c&5%

Casters—

Bed ..... 70@70c&10%
Plate ..... 60c&5@60c&10%
Philadelphia ..... 75@75c&5%
Acme, Ball Bearing 33⅓%
Boss ..... 70&10%
Boss Anti-Friction ..... 70&10%
Gem (Roller Bearing) 80%
Martin's Patent (Phœnix) 45%
Standard Ball Bearing 45%
Tucker's Patent low list 30%
Yale (Double Wheel) low list 50%

Cattle Leaders—

See *Leaders, Cattle.*

Chain, Coil—

American Coil, Jobbers' Shipments:

3-16	¼	5-16	⅜	7-16	½	9-16
8.00	5.50	4.15	3.75	3.60	3.50	3.45
⅝	¾	⅞	1 to 1¼ inch.			
3.35	3.25	3.50	3.15	per 100 lb.		

German Coil ..... 60&10c&10@70%

Halters and Ties—

Halter Chains ..... 60c&10@60c&10c&10%
German Pattern Halter Chains, list July 24, '97 ..... 60c&10c&10@.....%
Cow Ties ..... 60@60c&10%

Trace, Wagon, &c.—

Traces, Western Standard: 100 pair
6½—6-3, Straight, with ring *$23.50*
6½—6-2, Straight, with ring *$24.50*
6½—8-3, Straight, with ring *$25.00*
6½—10-2, Straight, with ring *$32.00*
Add 2¢ per pair for Hooks.
Twist Traces 2¢ per pair higher than Straight Link.
Trace, Wagon and Fancy Chains .....
10 &5@60c&10c&5%

Miscellaneous—

Jack Chain, list July 10, '93:
Iron ..... 60c&10@60c&10c&5%
Brass ..... 60c&10@60c&10c&10%
Safety Chain ..... 75c&75.&10c&5%
Gal. Pump Chain ..... *lb* 4¼@4¼c
Covert Mfg. Co.
Breast ..... 40&2%
Halter ..... 40&2%
Heel ..... 40&2%
Rein ..... 40&2%
Stallion ..... 40&2%
Covert Sad. Works:
Breast 70%
Halter 70%
Hold Back 70%
Rein 70%
Oneida Community:
Am. Coll and Halters ..... 40@40&5%
Am. Cow Ties ..... 45@50%
Eureka Coll and Halter ..... 45@50&5%
Niagara Coll and Halter ..... 45@50&5%
Niagara Cow Ties ..... 45&5@50&10&5%
Niagara Wire Dog Chains ..... 45@50&5%
Wire Goods Co.:
Dog Chain ..... 70&10%
Universal Dbl-Jointed Chain 50%

Chalk—(From Jobbers.)

Carpenters' Blue ..... *gro.* 25@28c
Carpenters', Red ..... *gro.* 32@33c
Carpenters', White ..... *gro.* 15@23c
See also Crayons.

Checks, Door—

Bardsley's 45%
Columbia ..... 50&10%
Eclipse ..... 60&10%

Chests, Tool—

American Tool Chest Co.:
Boys' Chests, with Tools 55%
Youths' Chests, with Tools 40%
Gentlemens' Chests, with Tools 30%
Farmers', Carpenters', etc., Chests, with Tools 25%
Machinists' and Tin'rs' Fitters' Chests, Empty 30%
Tool Cabinets 50%
C. E. Jenning. & Co.'s Machinists' Tool Chests ..... 33⅓&10%

Chisels—

Socket Framing and Firmer

Standard List ..... 70c&10@75c&5%
Buck Bros 30%
Charles Buck 30%
C. E. Jennings & Co. Socket Firmer No. 10 ..... 60%
C. E. Jennings & Co. Socket Framing No. 15 ..... 60%
Ohio Tool Co.'s 70%
Swan's 70%
L. & I. J. White ..... 30@30&5%

Tanged—

Tanged Firmers ..... 50c&5@40&10%
Buck Bros 30%
Charles Buck 30%
C. E. Jennings & Co.'s Nos. 10, 181 ..... 25%
L. & I. J. White, Tanged ..... 25&5%

Cold—

Cold Chisels, good quality. lb, 13@15c
Cold Chisels, fair quality .. lb, 11@12c
Cold Chisels, ordinary ..... lb. 9 @10c

Chucks—

Beach Pat., each $8.00 ..... 35&5%
Pratt's Positive Drive 25%
Empire 25%
Blacksmiths' 25%
Skinner Patent Chucks:
Independent Lathe Chucks 50%
Universal 50%
Combination 50%
Drill Chucks, New Model 30%
Drill Chucks, Standard 40%
Drill Chucks, Skinner Patent, 0, 1, 2 ..40%
Drill Chucks, Skinner Patent, 3, 4, 5, 6, 7, 8 ..... 30%
Drill Chucks, Positive Drive 30%
Planer Chucks 25%
Face Plate Jaws 40%
Standard Tool Co.:
Improved Drill Chuck 45%
Union Mfg. Co.:
Combination 50%
Czar Drill 35%
Combination Geared Scroll 40%
Geared Scroll 40%
Independent 50%
Independent Steel 40%
Union Drill 45%
Universal 50%
Independent Iron Face Plate Jaws..40%
Independent Steel Face Plate Jaws..40%
Westcott Patent Chucks:
Lathe Chucks 50%
Little Giant Auxiliary Drill 50%
Little Giant Double Grip Drill 50%
Little Giant Drill, Improved 50%
Oneida Drill 50%
Scroll Combination Lathe 50%

Clamps—

Adjustable, Hammers' ..... 20@20&5%
Cabinet, Sargent's ..... 50&10%
Carriage Makers', P., S. & W. Co. 50%
Carriage Makers' Sargent's 60%
Besly, Parallel ..... 33⅓&10%
Linemans' Utica Drop Forge & Tool Co.40%
Saw Clamps, see *Vises, Saw Filers'.*

Cleaners, Drain—

Iwan's Champion, Adjustable 55%
Iwan's Champion, Stationary 45%

Sidewalk—

Star Socket, All Steel ..... ₱ doz. $4.05 net
Star Shank, All Steel ..... ₱ doz. $3.24 net
W. & C. Shank, All steel, ₱ doz., 7¼ in., $3.00; 8 in., $3.25.

Cleavers, Butchers'—

Foster Bros 30%
New Haven Edge Tool Co.'s 45%
Fayette R. Plumb ..... 33⅓@33⅓&10%
L. & I. J. White 30%

Clippers—

Chicago Flexible Shaft Company:
'93 Chicago Horse ..... $8.75 } 15%
1902 Chicago Horse ..... $10.75 }
20th Century Horse, each, $5.00 ..... 20%
Lightning Belt ..... $15.00 } 15%
Chicago Belt ..... $20.00 }
Stewart's Patent Sheep $12.75 ..... 30%

Finger Nail Clippers—

Smith & Hemenway Co. ..... doz. net $2.00

Clips, Axle—

Eagle 5-16 and ⅜ inch ..... 75@75c&10%
Norway, 5-16 and ⅜ inch ..... 60c&10@70%

Cloth and Netting, Wire

—See Wire, &c.

Cocks, Brass—

Hardware list:
Compression, Plain Bibbs, Globe, Kerosene, Racking, &c., Cocks. 70c&10@75%

Coffee Mills—See *Mills, Coffee.*

Collars, Dog—

Nickel Chain, Walter B. Stevens & Son's list 40%
Leather, Walter B. Stevens & Son's list 40%

Combs, Curry—

Metal Stamping Co 40%

Mane and Tail—

Covert's Saddlery Works ..... 60&10%

Compasses, Dividers, &c.

Ordinary Goods ..... 75c&5@75c&10%
Bemis & Call Hdw. & Tool Co.:
Dividers 65%
Calipers, Double 65%
Calipers, Inside or Outside 65%
Calipers, Wing 60%
Compasses 50%

Conductor Pipe, Galva—

L. C. L. to Dealers:

Territory.	*Nested.*	*Not nested.*
A. Eastern.	75c&7½%	75c&2½%
B. Eastern.	75c&1 &2½%	75c&7½%
Central.	75c&7½%	75&
Southern	70c&10%	70c&5%
S. Western.	70c&7½%	70c&2½%

Terms, 60 days, 2% cash, 10 days. Factory shipments generally delivered.
See also *Eave Troughs.*

Coolers, Water—

Gal. each.	2	3	4	6	8
Labrador	$1.20	$1.50	$1.80	$2.10	2.70
Gal.	3	4	6	8	
Iceland, ea.	$1.80	$2.10	2.40	$2.90	
Gal.	2	3	4	6	8
Galv. Lined Ea	$1.35	$2.00	$2.2	$2.90	$3.90

25%

Ga.v. Lined side handles

Gal.	2	4	6	8
Each.	$1.95	$2.15	$2.40	$3.3	$4.15..25%

Coopers' Tools—

See *Tools, Coopers'.*

Cord—Sash—

Braided, Drab ..... *lb.* 35c
Braided, White, Com ..... *lb.* 21@22c
Cable Laid Italian ..*lb. A,* 18c; *B,* 16c
Common India ..... *lb.* 10@10½c
Cotton Sash Cord, Twisted ..... 11@16c
Patent Russia ..... *lb.* ..@14c
Cable Laid Russia ..... *lb.* ..@15c
India Hemp, Braided ..... *lb* ..@14c
India Hemp, Twisted ..... *lb.* 12@13c
Fatent India, Twisted ..... *lb.*12@15c
Anniston Cordage Co.: Braided Cotton.
Old Glory, Nos. 7 to 12 ..... ₱ lb 28 ¢
Anniston, Nos. 7 to 12 ..... ₱ lb 22 ¢
Old Colony, Nos 7 to 12 ..... ₱ lb 22 ¢
Anniston Drab, Nos. 7 to 12 ..... ₱ lb 26 ¢
Pearl Braided, cotton, No. 6, ₱ lb, 22¢:
Nos. 7 to 12 21¢.
Eddystone Braided. Nos. 7, 8, 9 and 10 .. ₱ lb 21¢
Eddystone Braided Cotton .No. 6, ₱ lb 25¢
Harmony Cable Laid Italian. No. 7 to 10 ..... ₱ lb 23¢
Peerless:
Cable Laid Italian ..... 16¢
Cable Laid Russian ..... 14¢
Cable Laid India ..... 12¢
Braided India ..... 18¢
Samson, Nos. 7 to 12:
Braided, Drab Cotton ..... ₱ lb 36½¢
Braided, Italian Hemp ..... ₱ lb 36¢
Braided, Linen ..... ₱ lb 53¢
Braided, White Cotton or Spot, ₱ lb 33¢
Massachusetts, White ..... ₱ lb 28 ¢
Massachusetts, Drab ..... ₱ lb 32 ¢
Phœnix, White, No's 7 to 12 ..... 24¢
No. 6 cords, 1¢ extra.
Silver Lake:
A quality, Drab ..... 40¢
A quality, White ..... 35¢
B quality, Drab ..... 35¢
B quality, White ..... 30¢
Italian Hemp ..... 40¢
Linen ..... 67½¢

Wire, Picture—

List Oct., '00. 85c&10c&10@35c&10c&10c&5%
Hendryx Standard Wire Picture Cord .. 85&10&5%

Cradles—

Grain ..... *40c&12½%*

Crayons—

White Round Crayons, gross 5½@6c
Cases, 100 gro., $4.00, at factory.
D. M. Steward Mfg. Co.
Jumbo Crayons ..... gr. $3.50 } Case lots 20%
Metal Workers' Crayons. gr. $2.50 }
Soapstone Pencils, round, flat or square ..... gr. $1.50 }
Rolling Mill Crayons ..... gr. $2.50 }
Railroad Crayons (composition) gr. $2.00 }
Zelnicker's Lumber:
Red, Blue, Green ..... ₱ gro. $6.50
Black ..... ₱ gro. $4.00
See also *Chalk.*

Crooks, Shepherds'—

Fort Madison, Heavy ..... ₱ doz. $7.00
Fort Madison, Light ..... ₱ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—

Victor Garden 50%

Cutlery, Table—

International Silver Company:
No. 12 Medium Knives, 1847.. ₱ doz. $3 50
Star, Eagle, Rogers & Hamilton and Anchor ..... ₱ doz. $3.00
Wm. Rogers & Son ..... ₱ doz. $2 50

Cutters—Glass—

H. H. Mayhew Co 40%
Red Devil 50%
Smith & Hemenway Co 50%
Woodward 40%

Meat and Food—

American 30%

Nos.	1	2	3	4	B	5
Each	$5	$7	$10	$25	$30	$60

Enterprise ..... 35@35&7½%

Nos.	5	10	12	22	32
Each	$2	$3	$3.75	$4.50	$6

Dixon's, ₱ doz ..... 30&10@40%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Ideal ..... 40&10@50%
Little Giant, ₱ doz ..... 33⅓@40%

Nos.	305	310	312	390	322
	$35.00	$48.00	$44.00	$73.00	$98.00

N. E. Food Chopper 40%
New Triumph No. 605, ₱ doz. $24.00 .. 30&10@40%
Russwin Food No. 1, $24 00; No. 2, $27.00 .. 45&10&10%
Woodruff's, ₱ doz ..... 30&10@40%

Nos.	100	150
	$15.00	$18.00

Enterprise Beef Shavers ..... 35@30%

Slaw and Kraut—

Henry Disston & Sons:
Slaw, Corn Grater, &c 40%
Kraut Cutters 24 x 7, 26 x 8, 30 x 9 .55%
Kraut Cutters 36 x 12, 40 x 12 ..... 40%
J. M. Mast Mfg. Co.:
Slaw Cutters, 1 Knife ..... ₱ doz. $3.00
Combined Slaw Cutter and Corn Grater ..... ₱ doz. $4.00
Tucker & Dorsey Mfg. Co.:
Kraut Cutters 40%
Slaw Cutters, 1 Knife, ₱ gr. ..$18@$30
Slaw Cutters, 2 Knife, ₱ gr. ..$22@$36

Tobacco—

All Iron, Cheap ..... *doz.* $4.95@$4.50
Enterprise ..... 35&5%
National, ₱ dos. No. 1, $21; No. 2, $18.. 40%
Sargent's, ₱ doz., No. 2 ..... 60%
Sargent's No. 12 and 21 ..... 50&10%

Washer—

Appleton's, ₱ doz. $16.00 ..... 50&10&10%

Diggers, Post Hole, &c.—

Dalbey Post Hole Auger ..per doz. $9.00
Iwan's Improved Post Hole Auger. 40&5%
Iwan's Vaughan Pattern Post Hole Augers, ₱ doz $6.25
Iwan's Perfection Post Hole Digger .. ₱ doz. $8.25
Iwan's Split Handle Post Hole Diggers, ₱ doz $7.25
Kohler's Universal ..... ₱ doz. $15.00
Kohler's Little Giant ..... ₱ d z. $12.00
Kohler's Hercules ..... ₱ doz. $10.00
Kohler's Invincible ..... ₱ doz. $9 00
Kohler's Rival ..... ₱ doz. $8.00
Kohler's Pioneer ..... ₱ doz. $7.20
Never-Break Post Hole Diggers, ₱ doz. $24.00 ..... 60%
Samson, ₱ doz. $34.00 ..... 25%

Dividers—See *Compasses.*

Doors Screen—

Phillips', style E, ¼ in ..... ₱ doz, $10.50
Phillips', style 077, ¾ in ..... ₱ doz, $8.00
Phillips', style x-y, ¼ in ..... ₱ doz, $11.00

Drawers, Money—

Tucker's Pat. Alarm Till No. 1, ₱ doz. $18; No. 2, $15; No. 3, $12 2 .. $18

Drawing Knives—

See *Knives, Drawing.*

Dressers, Emery Wheel—

Diamond Emery Wheel Dressers 35%
Diamond Wheel Dresser Cut ers 55%

Drills and Drill Stocks—

Common Blacksmiths' Drill..each $1.50@$1.75
Breast, Milliers Falls ..... 10&10%
Breast, P., S. & W ..... 40&5%
Goodell Automatic Drills..40&5@40&10%
Johnson's Automatic Drills Nos. 2 and 3 ..... 16⅔%
Johnson's Drill Points 16⅔%
Milliers Falls Automatic Drills ..33⅓&10%
Ratchet, Curtis & Curtis 25%
Ratchet, Parker's 40%
Ratchet, Weston's 33⅓%
Ratchet, Whitney's, P. S. & W 50%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00 ..... 33⅓%

Twist Drills—

Bit Stock ..... *60c&10@60c&10c&10%*
Taper and Straight Shank ..... *60c&10@60c&10c&5%*

Drivers, Screw—

Screw Driver Bits..per doz. ..45@60c
Baisey's Screw Holder and Driver, ₱ doz. 2½-inch, $6; 4-in., $7.50 6-in., $9..40%
Buck Bros' Screw Driver Bits 30%
Champion 50%
Edson 60%
Fray's Hol. H'dle Sets, No. 3, $12.00 50%
Gay's Double Action Ratchet 35%
Goodell's Auto 50&10&10@50&10&10&5%
Hurwood 40%
Mayhew's Black Handle 40%
Mayhew's Monarch ..... 40&10%
Millers Falls, Nos. 20 and 21 ..... 25&10%
Millers Falls, Nos. 11, 12, 41 42 ..... 15&10%
Never Turn 60%
New England Specialty Co 50%
Sargent & Co.'s:
Nos. 1 and 60 ..... 50&10&10%
Nos. 50 and 55 ..... 60&10%
Nos. 20 and 40 ..... 70&10%
Smith & Hemenway Co ..... 40&5%
H. D. Smith & Co.'s, Perfect Handle ..40%
Stanley s R. & L. Co.'s:
No. 64, Varnished Handles 30@60&10&10%
No. 86 ..... 70@70&10&10%
Swan's:
Nos. 65 to 68 ..... 50%
No. 40 ..... 40&10%
Nos. 25, 35 and 45 ..... 20&10&10%

Eave Trough, Galvanized

Territory.	*L. C. L.*
A. Eastern	*80c&10%*
B. Eastern	*80c&10c&5%*
Central	*80c&10%*
Southern	*75c&10c&5%*
S. Western	*75c&10c&5%*

Terms, 2% for cash. Factory shipments generally delivered.
See also *Conductor Pipe and Elbows.*

Elbows and Shoes—

Factory shipments 60%
Perfect Elbows (S. S. & Co.) 40%

Emery, Turkish—

	4 to 46	54 to 150	Flour
Kegs ..... *lb.*	5c	5½c	3½c
½ *Kegs* ..... *lb.*	5¼c	5¾c	3¾c
Kegs ..... *lb*	5c	6c	
10-lb cans. 10 in case	6½c	7c	6c
10-lb. cans, less than 10.	10c	10c	8c

Note.—In lots 1 to 3 tons a discount of 10% is given.

Extractors, Lemon Juice

—See Squeezers, Lemon.

Fasteners, Blind—

Zimmerman's ..... 50&10%
Walling's 45%

Cord and Weight—

Ives 40%

Faucets—

Cork Lined ..... *50@50c&10%*
Metallic K-v, Leather Lind 70@70c&10%
Red Cedar ..... *50@50c&10%*
Petroleum ..... *70c&10@75%*
B. & L. B. Co.:
Metal Key ..... 60&10%
Star 60%
West Lock ..... 50&10%
John Sommer's Peerless Tin Key 40%
John Sommer's Boss Tin Key 50%
John Sommer's Victor Metal Key. 50&10%
John Sommer's Duplex Metal Key 60%
John Sommer's Diamond Lock 40%
John Sommer's I. X. L. Cork Lined ..50%
John Sommer's Reliable Cork Lined .. 50&10%
John Sommer's Chicago Cork Lined..60%
John Sommer's O. K. Cork Lined 50%
John Sommer's No Brand, Cedar 50%
John Sommer's Perfection Cedar 40%
McKenna, Brass:
Burglar Proof, N. P 25%
Improved, ¼ and ⅜ inch 25%
Self Measuring:
Enterprise, ₱ doz. $90.00 ..... 40&10%
Lane's, ₱ doz. $36.00 ..... 40&10%
National Measuring, ₱ doz. $36..40&10%

Felloe Plates—

See *Plates, Felloe.*

Files—Domestic—

List revised Nov. 1, 1899.
Best Brands ..... *70c&10@75c&5%*
Standard Brands 75c&10@75c&10c&10%
Lower Grade ..... *75c&10c&10@80c&10%*

Imported—

Stubs' Tapers, Stubs' list, July 24, '97 ..... *50%*

Fixtures, Fire Door—

Richards M'f'g. Co.:
Universal No. 100 ..... $4.00
Special No. 104 ..... $4.00
Fusible Links $0.25
Expansion Bolts ..... 50&10%

Grindstone—

Net Prices:

Inch	15	17	19	21	24
Per doz.	$2.15	2.85	3.25	3.75	4.50

P., S. & W. Co ..... 30&10@50%
Reading Hardware Co 60%
Sargent's 70%
Stowell's Giant Grindstone Hanger .. ₱ doz. $6.00
Stowell's Grindstone Fixtures, Extra Heavy ..... 50&10&10%
Stowell's Grindstone Fixtures Light .. 60&10%

Fodder Squeezers—

See *Compressors.*

Forks—

Base Discounts Aug. 1, 1899, list:

Hay, 2 tine ..... 50c&10c&5%
Boys'. & Fish, 2 tine ..... 50c&10c&5%
Hay & Boys', 3 tine ..... 60c&5%
Hay & Boys', 3 tine 66⅔%
Champion Hay 66⅔%
Hay & Header, long 3 tine 65%
Header, 4 tine 65%
Barley, 4 & 5 tine, Steel ..... 60c&20%
Manure, 4 tine ..... 60c&15c&2½%
Manure, 5 and 6 tine ..... 66⅔c&2½%
Spading ..... 70c&2½%
Potato Digger, 6 tine ..... 60c&10%
Sugar Beet ..... 40c&10%
Coke & Coal ..... 40c&10%
Heavy Mill & Street 65%
Iowa Dig-Esy Potato ..... 60c&10%
Victor, Hay ..... 60c&15c&2½%
Victor, Manure 66⅔%
Victor, Header 65%
Champion, Hay 66⅔%
Champion Header 65%
Champion, Manure ..... 60c&15c&2½%
Columbia, Hay ..... 60c&20%
Columbia, Manure 70%
Columbia, Spading ..... 70c&12½%
Hawkeye Wood Barley 40%
W. & C. Potato Digger ..... 60c&10%
Acme Hay ..... 60c&20%
Acme Manure, 4 tine ..... 60c&10c&5%
Dakota Header ..... 60c&20%
Jackson Steel Barley ..... 60c&20%
Kansas Header 65%
W. & C. Favorite Wood Barley 40%
Plated.—See *Spoons.*

Frames— Saw—

White, Straight Bar, per doz. 75@80c
Red, Straight Bar, per doz $1.00 & $1.25
Red, Double Brace, per doz. $1.40@1.50

Freezers Ice Cream—

Qt.	1	2	3	4	6
Each	$1 25	$1 60	$1.90	$2.20	$2.80

Fruit and Jelly Presses—

See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse—

Per 1000 Feet.

Hemp $2.75
Cotton 3.30
Waterproof Single Taped 3.85
Waterproof Double Taped 4.40
Waterproof Triple Taped 5.15

Extra 10% on last 4 items.

Gates Molasses and Oil—

Stebbins' Pattern ..... 80c&10@80c&10c&5%

Gauges—

Marking, Mortise, &c. ..... 50c&10c&5@50c&10c&10c&5%
Chapin-Stephens Co.:
Marking, Mortise, etc. ..... 50c&10@50c&10c&10%
Scholl's Patent ..... 50c&10@50c&10c&10%
Door Hangers ..... 50@50c&10%
Stanley R. & L. Co.'s Butt & Babbet Gauge ..... 20@20c&10c&10%
Wire, Brown & Sharpe's 25%
Wire, Morse's 25%
Wire P., S. & W. Co ..... 30c&10%

Gimlets— Single Cut—

Nail, Metal, Assorted, gro. $1.50@1.50
Spike, Metal, Assorted gro. $2.80@3.50
Nail, Wood Handled, Assorted, gro. $1.75@2.00
Spike, Wood Handled, Assorted gro. $4.25@4.50

Glass, American Window

See *Trade Report.*

Glasses, Level—

Chapin-Stephens Co ..... 60@60&10&10%

Glue—Liquid Fish—

Bottles or Cans, with Brush ..... 25@50%
Cans (½ pts., pts., qts., ½ gal., gal.) ..... 25@48%
International Glue Co. (Martin's) ..... 40&10%

Grease Axle—

Common Grade ..... *gro. $4.50@5.50*
Dixon's Everlasting ..... 10-lb pails, ea. 85¢
Dixon's Everlasting, in bxs., ₱ doz. 1 lb $1.20; 2 lb $2.00

Grips, Nipple—

Perfect Nipple Grips ..... 40&10&2%

Griddles, Soapstone—

Pike Mfg. Co. ..... 33⅓&33⅓&10%

Grindstones—

Bicycle Emery Grinder $6.50
Bicycle Grindstones, each ..... $2.50@3.00
Pike Mfg. Co.:
Improved Family Grindstones, per inch, per doz. $2.00
Pike Mower Knife and Tool Grinder, each $6.00

35%

Velox Ball Bearing, mounted, Angle Iron Frames ..... each, $3.25

Halters and Ties—

Covert Mfg. Co.:
Web ..... 40&2½%
Jute Rope ..... 40&5&5%
Sisal Rope 30%
Cotton Rope ..... 45&2%
Hemp Rope ..... 45&2%
Covert's Saddlery Works:
Web and Leather Halters 70%
Jute and Manila Rope Halters 70%
Sisal Rope Halters ..... 60&20%
Jute, Manila and Cotton Rope Ties 70%
Sisal Rope Ties ..... 60&10%

Hammers—

Handled Hammers—

Heller's Machinists' ..... 40&10@40&10&10%
Heller's Farriers ..... 40&10@40&10&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75 ..... 40@40&10&10%
Peck, Stow & Wilcox ..... 40&10&5%
Fayette R. Plumb:
Plumb, A. E. Nail ..... 33⅓&7½@33⅓&10&7½%
Engineers' and B. S. Hand ..... 50&7½&5@50&10&7½&5%
Machinists' Hammers 50&5@50&10&5%
Riveting and Tinners' ..... 40&2½@40&10&2½%
Sargent's C. S. New List 40%

Heavy Hammers and Sledges—

Under 3 lb., per lb. 5 c. ..... 90c&10c&10@85%
3 to 5 lb ..... *per lb 4 c.* 80c&10c&10@85%
Over 5 lb. ..per lb. 30c. ..... 85@85c&10%
Wilkinson's Smiths' ..... 9½c@10c lb.

Handles—

Agricultural Tool Handles—

Axe, Pick, &c. ..... 4.7@50c&5%
Hoe, Rake, &c. ..... 55@50c&5%
Fork, Shovel, Spade, &c.:
Long Handles ..... 45@50&5%
D Handles 40%

Cross-Cut Saw Handles—

Atkins' ..... 40&5%
Champion ..... 45@45&10%
Disston's 50%

Mechanics' Tool Handle. 75

Auger, assorted ..... *gro $2.50@2 85*
Brad Awl ..... *gro. $1.65@1 85*
Chisel Handles:
Apple Tanged Firmer, gro. ass'd, $2.50@2.65
Hickory Tanged Firmer, gro. ass'd. $2.15@2.40
Apple Socket Firmer, gro. ass'd, $1.75@1.95
Hickory Socket Firmer, gro ass'd, $1.45 @ $1.60
Hickory Socket Framing, gro. ass'd. $1.60@1.75
File, assorted ..... *gro. $1.30@$1.40*
Hammer, Hatchet, Axe, &c. *50%*
Hand Saw, Varnished, doz .80@85c
Not Varnished ..... *65@75c*
Plane Handles:
Jack, doz. 80c; Jack Bolted *75c*
Fore, doz. ..... *45c; Fore, Bolted 90c*
Chapin-Stephens Co.:
Carving Tool ..... 40@40&10%
Chisel ..... 65@65&10%
File and Awl ..... 65@65&10%
Saw and Plane ..... 40@40&10%
Screw Driver ..... 40@40&10%
Millers Falls Adj. and Ratchet Auger Handles ..... 15&10%
Nicholson Simplicity File Handle, ₱ gro ..... $0.85@$1.50

Hangers—

NOTE.—*Barn Door Hangers are generally quoted per pair, without track and Parlor Door Hangers per double set with track, &c.*

Barn Door, New Pattern, Round Groove, Regular:

Inch	3	4	5	6	8
Single Doz.	$0.90	1.25	1.60	1.95	2.50

Barn Door, New England Pattern, Check Back, Regular:

Inch	3	4	5	6
Single Doz.	$1.30	1.85	2.50	3.00

Allith Mfg. Co.
Reliable No. 1 ..... per. doz. $8.00
Reliable No. 2 ..... per. doz. $9.00
Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin 35%
Chisholm & Moore Mfg. Co.:
Baggage Car Door 50%
Elevator 30%
Railroad 50%
Cronk & Carrier Mfg. Co.:
Loose Axle ..... 60&10&5%
Roller Bearing ..... 70&5%
Griffin Mfg. Co.:
Solid Axle, No. 10, $12.00 ..... 70%
Roller Bearing, No. 11, $18.00 ..... 70%
Roller Bearing, Ex. Hy., No. 22, $18.00 ..... 70%
Hinged Hanger, $16.00 ..... 60&10%
Lane Bros. Co.:
Parlor, Ball Bearing $4.00
Parlor, Standard $3.15
Parlor, No. 105 ..... $2.85
Parlor, New Model $2.80
Parlor New Champion $2.25
Barn Door, Standard ..... 60&10&2½%
Hinged ..... net $6.40
Covered ..... 60&10%
Special ..... 70&5%
Lawrence Bros.:
Advance ..... 60&10%
Cleveland ..... 70&5%
Clipper, No. 75 ..... 60%
Crown ..... 60&10%
Easy Parlor Door, Dbl. Sets, $2.50 Single Sets, $1 25. ..... 60&5%
Giant ..... 70&5%
Hummer ..... 60&10%
New York ..... 70&5%
Peerless ..... 60&10%
Sterling ..... 60&10%
McKinney Mfg. Co.:
No. 1, Special, $15 ..... 60&10%
No. 2, Standard, $18 ..... 60&10%
Hinged Hangers, $16 ..... 50%
Meyers' Stayon Hangers 60%
Richards Mfg. Co.:
Pioneer Wood Track No. 8 ..... $2.15
Ball B'r'g Steel Track No. 10 ..... $2.40
Roller B'r'g Steel Track No. 12 ..... $2.80
Ball B'r'g Steel Track No. 18 ..... $2.40
Roller B'r'g Steel Track No. 14 ..... $2.80
Hero, Adjustable Track No. 19 ..... 50%
Adjustable Track Tandem Trolley Track No. 16 ..... 50%
Seal, Steel Track No. 8 ..... $2.40
Auto Adjustable Track No. 22, 40&10%
Trolley B. D. No. 17 ..... $1.40
Trolley F. D. No. 120 ..... $2.25
Trolley F. D. No. 121 ..... $2.45
Trolley F. D. No. 151 ..... $2.60
Safety Underwriters F. D. No. 101 $2.25
Tandem No. 44 ..... 70&5%
Trolley F. D. No. 151 ..... $3.00
Palace, Adjustable Track No. 132 ..... 40&10%
Royal, Adjustable Track No. 122 ..... 4.&10%
Ives' Wood Track No. 1 ..... $2.15
Trolley B. D. No. 20 ..... $1.35
Trolley B. D. No. 24 ..... $1.45
Trolley B. D. No. 27 ..... $1.5
Trolley B. D. No. 38 ..... $1.66
Roller Bearings Nos. 39, 40, 41, 43, 44 ..... 70&5%
Anti-friction No. 42 ..... 60&10%
Hinged Tandem No. 48 ..... 6%
Folding Door B. B. Swivel No. 135 ..... 30%
Safety Door Hanger Co.:
Storm King Safety 60%
U. S. Standard Hinge 60%
Stowell Mfg. and Foundry Co.:
Acme Parlor Ball Bearing 40%
Ajax Hinge Door 60%
Apex Parlor Door ..... 50&10&5%
Atlas 60%
Baggage Car Door 50%
Climax Anti-Friction ..... 50&10%
Elevator 40%
Express 50%
Freight Car Door 6%
Interstate ..... 60&10%
Lundy Parlor Door ..... 50&10%
Magic 60%
Matchless ..... 60&10%
Nansen ..... 70&5%
Parlor Door ..... 55&10%
Railroad ..... 50&10%
Rex Hinge Door 60%
Street Car Door 50%
Steel, Nos. 300, 404, 500 ..... 50&10%
Underwriter's Fire Door 40%
Wild West Warehouse Door 50%
Zenith F. & r Wood Track ..... 50&10%
A. L. Swett Iron Works:
Check Back 70%
Climax Anti-Friction ..... 50&10%
Eagle 70%
Hylo Hinge 60%
New Perfection 60%
Pilot 60%
Pilot Hinge 60%
Rider Wooster 65%
Western Pattern 70%
Taylor & Boggis F'y Co.'s Kidder's Roller Bearing ..... 50&15&10&5%
Wilcox Mfg. Co.:
Bike Roller Bearing ..... 60&10%
C. J. Roller Bearing ..... 60&10%
Cycle Ball Bearing 50%
Dwarf Ball Bearing 40%
Ives, Wood Track ..... 60&10%
L. T. Roller Bearing ..... 60&10&5%
New Era Roller Bearing ..... 50&10%
O. K. Roller Bearing ..... 60&10&5%
Prindle, Wood Track 60%
Richards' Wood Track 60%
Richards' Steel Track ..... 50&10%
Spencer Roller Bearing ..... 60&10%
Tandem Nos. 1 and 2 ..... 60%
Underwriters' Roller Bearing 40%
Velvet 50%
Wilcox Auditorium Ball Bearing 20%
Wilcox Barn Trolley No. 123 ..... 40%
Wilcox Elv. Door, Nos 112 and 122 ½ 50%
Wilcox Elv. Door, No. 132 ..... 40%
Wilcox Fire Trolley, Roller Bearing 30%
Wilcox Le Roy Noiseless Ball Bearing 40%
Wilcox New Century ..... 50&10&10%
Wilcox O. K. Steel Track 50%
Wilcox O. K. Trolley 50%
Wilcox Trolley Ball Bearing 40%
Wilcox Wideman Narrow Gauge, Ball Bearing 40%
For Track, see *Rail*

Extra 5&10% often given.

Hangers, Garment—

Pullman Trouser, No. 1, ₱ gro. $9.00
Pullman Trouser, No. 4, ₱ gro. $24.00
Victor Folding ₱ gro. $9.50
Western, W. G. Co. ..... 70&10%

Gate—

Myers' Patent Gate Hangers, ₱ dozset. 4.50

Hasps—

McKinney's Perfect Hasp, ₱ doz. 50%

Hatchets—

Regular list ..... 25c&10@35⅓&5%

Heaters Carriage—

Clark, No 5, $1.75; No. 5B, $2.00; No 8, 2.25; No. 8D, $2.75; No. 7D, $3.00; No. 3E, $3.25; No. 1, $3.50. ..... 1%
Clark Coal, $0.75 ₱ doz. 10%

Hinges—

Blind and Shutter Hinges—

Surface Gravity Locking Blind: (Victor; National; 1883 O. P. Niagara; Clark's O. P.; Clark's Tip; Buffalo.)

No.	1	3	5
Doz. pair	$0.85	1.75	3.50

Mortise Shutter: (L. & P., O. S., Dixie, &c.)

No.	1	1½	2	2½
Doz. pair	$0.70	.65	.60	.55

Mortise Reversible Shutter, (Buffalo, &c.)

No.	1	1½	2
Doz. pair	$0.75	.70	.65

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50 ..... 10%
Parker ..... 70&75%
Reading's Gravity 60%
Sargent's, Nos. 1, 3, 5, 11 & 13 ..... 75%
Stanley's Steel Gravity Blind Hinges, ₱ doz. sets, without screws, $0.90 with screws, $1.20.
Wrightsville H'dware Co.:
O. S., Lull & Porter ..... 75&5%
Acme, Lull & Porter 75%
Queen City Reversible 75%
Shepard's Noiseless, Nos. 0, 65, 55, 70& 75
Niagara, Gravity Locking, No. 1, 3 & 5 ..... 75%
1883, Old Pat'n. Nos. 1, 3 & 5. ..... 75%
Tip Pat'n, Nos. 1, 3 & 5 ..... 5%
Buffalo Gravity Locking, Nos. 1, 3 & 5 ..... 75%
Shepard's Double Locking, Nos. 20 & 25 ..... 70%
Champion Gravity Locking, No. 75. 75%
Steamboat Gravity Locking, No. 10. 75%
Pioneer, Nos. 060, 45 & 5½ 75%
Empire, Nos. 101 & 103. ..... 70%
W. H. Co.'s Mortise Gravity Locking, No. 2. ..... 60%

Gate Hinges—

Clark's or Shepard's—Doz. sets:

No.	1	2	3
Hinges with Latches	$2.00	2.70	5.00
Hinges only	$1.40	2.05	3.80
Latches only	.70	.70	.35

New England:

With Latch	doz.	@$2.00
Without Latch	doz.	@$1.60

Reversible Self-Closing:

With Latch	doz.	@$1.75
Without Latch	doz.	@$1.35

Western:

With Latch	doz.	$1.75
Without Latch	doz.	$1.15

Wrightsville H'dware Co.:
Shepard's or Clark's, doz. sets,

No.	1	2	3
Hinges with Latches	$2.00	2.70	5.00
Hinges only	1.40	2.05	3.80
Latches only	.70	.70	1.35

Pivot Hinges—

Bommer Bros. Pivot 40%
Lawson Mfg. Co. Matchless 45%

Spring Hinges—

Holdback Cast Iron gro. ..... *$9.00@9.50*
Non-Holdback, Cast iron, gro. $8@8.50
J. Bardsley
Bardsley's Non-Checking Mortise Floor Hinges 45%
Bardsley's Patent Checking 15%
Bommer Bros.:
Bommer Ball Bring Floor Hinges 40%
Bommer Spring Hinges 20%
Chicago Spring Butt Co.:
Chicago Spring Hinges 25%
Triple End Spring Hinges 50%
Chicago (Ball Bearing) Floor Hinge 50%
Garden City Engine House 25%
Keene's Saloon Door 25%
Columbian Hdw. Co.:
Acme, Wrt. Steel 30%
Acme, Brass 25%
American 30%
Columbia, No. 14 ..... ₱ gr. $9.00
Columbia, No. 18 ..... ₱ gr. $25.00
Columbia, Adjustable, No. 7, ₱ gr. $12.00
Gem, new list 30%
Clover Leaf ..... ₱ gr. $12.50
Oxford, new list 30%
Lawson Mfg. Co. Matchless 30%
Richards Mfg. Co.:
Superior Double Acting Floor Hinges 40%
Shelby Spring Hinge Co.:
Chief Ball Bearing Floor Hinge 50%
Ohio Detachable Screen Door Hinge ₱ gro. $12.00
The Stover Mfg. Co.:
Ideal, No. 16, Detachable, ₱ gr. $12.50
Ideal, No. 4 ..... ₱ gr. $9.00
New Idea No. 1 ..... ₱ gr. $9.00
New Idea, Double Acting 45%
New Idea Floor 45%
Van Wagoner:
Ball Bearing 25%
No. 777 Sh't Steel Holdb'k ..₱ gro. pr. $9

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—

Strap and T Hinges, &c., list Mar 15, 1901:

Light Strap Hinges ..... 80c&5%
Heavy Strap Hinges 80c&20c&10%
Light T Hinges ..... 75c&10c&5%
Heavy T Hinges ..... 75c&5%
Extra Heavy T Hinges ..... 80c&5%
Hinge Hasps 70%
Cor. Heavy Strap ..... 80c&20c&10%
Cor. Ex. Heavy T ..... 80c&20%

Extra 5 or 10% on 4 items.

Screw Hook and Strap.
6 to 12 in ..... *lb. 3½c*
14 to 20 in ..... *lb. 3 c*
22 to 36 in ..... *lb. 2¾c*

Screw Hook and Eye:

¾ to 1 inch	lb. 6 c
⅝-inch	lb. 7 c
½-inch	lb. 9 c

Hitchers, Stall—

Covert Mfg. Co., Stall Hitchers 85%

Hods, Coal—

	15	16	17	18 inch.
Galv. Open	$2.50	2.75	3.00	3.25 ₱ doz.
Jap. Open	$2.00	2.25	2.50	2.75 ₱ doz.
Galv. Funnel	$3.00	3.25	3.50	3.75 ₱ doz.
Jap. Funnel	$2.50	2.75	3.00	3.25 ₱ doz.

Masons, Etc.—

Cleveland Wire Spring Co.:
Steel Mortar ..... each $1.45
Steel Brick ..... each $1.10

Hoes— Eye—

Scovil and Oval Pattern ..... 60c&10@60c&10c&10%
Grub, list Feb. 23, 1899 70c&10@75c&10%
D. & H. Scovil 25%

Handled—

Aug. 1, 1899, List:

Field and Garden ..... 70c&10%
Smith's Patent 50%
Meadow & Rhode Island 75%
Black Diamond ..... 70c&10%
Mortar and Street ..... 70c&10c&10%
Planters' ..... 75c&12½%
Cotton ..... 70c&10c&10%
Cotton Chopper ..... 75c&12½%
Weeding Hoes ..... 66⅔c&15%
Steel Weeders ..... 66⅔c&15%
Malleable Weeders ..... 66⅔c&15%
Ft. Madison Cotton Hoe ..... 70&10&10%
Ft. Madison Crescent Cultivator Hoe per doz ..... 70&10%
Ft. Madison Mattock Hoes:
Regular Weight ..... ₱ doz. 66⅔%
Junior Size ..... ₱ doz. $4.00
Ft. Madison Sprouting Hoe, ₱ doz. 50%
Ft. Madison Dixie Tobacco Hoe ..... 75&10&7½%
Kretsinger's Cut Easy ..... 70&10%
Warren Hoe ..... 45&10%
W. & C. Ivanhoe ..... 75&2%
B. B. 6 in., Cultivator Hoe $3.15
B. B., 6½ in. $3.35
Acme Weeding ..... ₱ doz., net, $4.35
W. & C. Lightning Shuffle Hoe, ₱ doz. $4.85

Hoisting Apparatus—

See *Machines, Hoisting.*

Holders— Bit—

Angular, ₱ doz. $24.00 ..... 45&10%

Door—

Empire 50%
Bardsley's 45%

File and Tool—

Nicholson File Holders and File Handles ..... 33⅓&5 40%

Hooks- Cast Iron—

Bird Cage, Reading 60%
Bird Cage, Sargent's List ..... 60&10%
Ceiling, Sargent's List ..... 50&10&10%
Clothes Line, Reading List ..... 6%&10%
Clothes Line, Sargent's List. 50&20&10%
Coat and Hat, Sargent's List ..... 50&10%
Clothes Line, Stowell's 70%
Coat and Hat, Reading ..... 45&20%
Coat and Hat, Stowell's 70%
Coat and Hat, Wrightsville 65%
Harness, Reading List ..... 60%&
Harness, Stowell's 60%
School House, stowell's 70%

Wire—

Belt ..... *80c—*
Wire C. & H. Hooks ..... *75@75c&10%*
Atlas, Coat and Hat:
Single Cases 75%
10 Case Lots ..... 75&10%
Columbian Hdw Co. Gem ..... 60&10%
Parker Wire Goods Co.: King ..... 75&10%
Van Wagoner, Coat and Hat 70%
Western W. G. Co. Molding 75%

Wire Goods Co.:
Acme ..... 60&10%
Chief 70%
Crown ..... 70&10%
Czar 60%
V Brace ..... 50&10%
Czar Harness ..... 50&10%

Wrought Iron—

Box, 6 in., per doz. $1.00; 8 in., $1.25; 10 in., $2.50.
Cotton ..... doz. $1.05@1.25
Wrought Staples, Hooks, &c.— See *Wrought Goods.*

Miscellaneous—

Hooks, Bench, see *Stops, Bench.*
Bush, Light, doz. $5.50; Medium, $6.00; Heavy, $6.50

Grass.....Nos.	*1*	*2*	*3*	*4*
Best	*$1.50*	*1.75*	*2.00*	
Common	*$1.30*	*1.50*	*1.80*	*1.60*

Potato and Manure ..... 60@15%
Wh fletres ..... lb. 5½@6c
Hooks and Eyes:
Brass ..... 60&10@10@70%
Malleable Iron ..... 70@5@70@10%
Covert Mfg. Co, Gate and Scuttle Hooks 35%
Covert Saddlery Works' Self Locking Gate and Door Hook 60%
Ft. Madison Cut-Easy Corn Hooks, ₩ doz., $5.25 net
Bench Hooks—See *Bench Stops.*
Corn Hooks—See *Knives, Corn.*

Horse Nails—See *Nails, Horse*

Horseshoes—

See *Shoes, Horse.*

Hose Rubber—

Garden Hose, ¾-inch:
Competition ..... ft. 4½@ 5 c
3-ply Standard ..... ft. 6½@ 7 c
4-ply Standard ..... ft. 7½@ 8 c
3-ply extra ..... ft. 8½@ 9 c
4-ply extra ..... ft. 10 @10½c
Cotton Garden, ¾-in., coupled:
Low Grade ..... ft. 6 @7 c
Fair quality ..... ft. 8 @9 c

Irons—Sad—

From 4 to 10 ..... lb. 3¼@3 c
B. B. Sad Irons ..... lb. 3¼@3½c
Chinese Laundry ..... lb. 4¾@5c
Chinese Sad ..... lb. 4@4½c
Mrs. Potts', cents per set:

Nos.	*50*	*55*	*60*	*65*
JapdTops	*63*	*59*	*72*	*69*
TinaTops	*65*	*62*	*75*	*72*

New England Pressing, lb.. 3¾@4c

Pinking—

Pinking Irons ..... doz. 50@60c

Soldering—

Soldering Coppers 2½ and 3..19@20c
1½ and 2 ..... 21@22c

Jacks, Wagon—

Covert Mfg. Co.:
Auto Screw ..... 80&5%
Steel ..... 45&2%
Covert's Saddlery Works':
Daisy ..... 60&10%
Victor 60%
Lockport 50%
Lane's Steel ..... 30&10&5%
Richards' Tiger Steel, No. 130 ..... 40%

Kettles—

Brass, Spun, Plain ..... 20@25%
Enameled and Cast Iron—See *Ware, Hollow.*

Knives—

Butcher, Kitchen, &c.—

Foster Bros.' Butcher, &c 30%
Smith & Hemenway Co ..... 40&10%
Wilkinson Shear & Cutlery Co 50%
Hay and Straw—See *Hay Knives.*

Corn—

Withington Acme, ₩ doz., $2.65; Dent, $2.75; Ad. Serrated, $2.20; Serrated, $2.10; Yankee No. 1, $1.50; Yankee No. 2, $1.15.

Drawing—

Standard List ..... 70&10@75&5%
C. E. Jennings & Co. Nos. 45, 46 ..... 60%
Jennings & Griffin. Nos. 41, 42 ..... 60%
Ohio Tool Co.'s 70%
Swan's ..... 70&10&2½%
Watrous 10%
L. & L. J. White ..... 20&5@25%

Hay and Straw—

Iwan's Sickle Edge ..... ₩ doz. $9.50
Iwan's Serrated ..... ₩ doz. $10.00

Mincing—

Buffalo ..... ₩ gro. $13.00

Miscellaneous—

Furriers' ..... doz. $3.00@3.25
Wostenholm's ..... ₩ doz. $3.00@3.25

Knobs—

Base, 2½-inch, Birch, or Maple, Rubber tip, gro ..... $1.10@1.15
Carriage, Jap, all sizes..gro, 40@45c
Door, Mineral ..... doz. 65@70c
Door, Por. Jap'd ..... doz. 70@75c
Door, Por. Nickel ..... doz. $2.05@2.15
Bardsley's Wood Door, Shutter, &c ..15%
Picture, Sargent's ..... 60&10&10%

Lacing Leather—

See *Belting, Leather—*

Ladders, Store Etc.—

Lane's Store 25%
Myers Noiseless Store Ladders 30%
Richards Mfg. Co.:
Improved Noiseless, No. 112 ..... 40%
Climax Sh- lf, No. 113 ..... 40%
Troller, No 108 ..... 40%

Ladles—Melting—

L. & G. Mfg. Co, Low List 35%
P. S. & W 50%
Reading 60%
Sargent's ..... 50&10%

Lanterns—Tubular—

Regular Tubular No. 0..doz. $4.25@4.75
Lift Tubular..No. 0..doz. $4.75@5.25
Hinge Tubular..No. 0..doz. $4.75@5.25
Other Styles ..... 40&10@40&10&5%

Bull's Eye Police—

No. 1, 2¾ inch ..... $2.50@2.75
No. 2, 3 inch ..... $2.75@3.00

Lasts and Stands, Shoe—

Stowell's Atlas, Malleable Iron 50%
Stowell's Badger, Cast Iron 50%

Latches—Thumb—

Reagin's Latches, with screw..dz 35@40c

Door—

Richards' Bull Dog, Heavy, No. 125 ....40%
Richards' Trump, No. 127 ..... 50%

Leaders, Cattle—

Small ..... doz. 55c; large, 60c
Covert Mfg. Co 35%

Lifters, Transom—

R & E 33⅓%

Lines—

Wire Clothes, Nos...	*18*	*19*	*20*
100 feet	*$2.20*	*2.00*	*1.65*
75 feet	*$1.80*	*1.70*	*1.30*

Samson Cordage Works:
Solid Braided Chalk, No. 0 to 3 ..... 10%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₩ gr 20%
Masons' Lines, Shade Cord, &c.: White Cotton No. 3½, $1.50; No. 4 $2.00; No 4½, $2.50; Colors, No. 3½, $1.75; No. 4, $2.25; No. 4½, $2.75; Linen, No. 3½ $2.50; No. 4, $3.50; No. 4½, $4.50 ..... 20%
Tent and Awning Lines: No. 5, White Cotton, $2.50; Drab Cotton, $3.50 ..... 20%
Clothes Lines, White Cotton: 50 ft., $2.75; 50 ft., $3.25; 70 ft., $3.75; 75 ft., $4.00; 80 ft., $4.25; 90 ft., $4.75; 100 ft. $5.25..20%
Anniston Waterproof Clothes, 50 ft., ₩ gro.: $24.00; Gilt Edge, $22.00; Air Line $22.00; Acme, $17.00; Alabama, $15.00; Empire, $14.00; Advance, $13.50; Oriole, $20.00; Albermarle, $13.50; Eclipse, $12.50; Chicago, $11.00; Standard, $10.50; Columbia, $8.50; Allston, $12.50; Calhoun, $11.00.

Locks—Cabinet—

Cabinet Locks ..... 33⅓@33⅓@7½%

Door Locks, Latches, &c.—

[Net prices are very often made on these goods.]
Reading Hardware Co ..... 45&20%
R. & E. Mfg. Co 40%
Sargent & Co ..... 40&10%
Stowell's Steel Door Latches 50%

Elevator—

Stowell's 50%

Padlocks—

Wrought Iron ..... 75&10&5@30&5%
R. & E. Mfg. Co. Wrt. Steel and Brass.. 75@75&10%

Sash, &c.—

Ives' Patent:
Bronze and Brass 62½%
Crescent ..... 50&10%
Iron 62½%
Window Ventilating 60%
Robison Patent Ventilating Sash Lock 40%
Wrought Bronze and Brass 55%
Wrought Steel 55%
Pullman Patent Ventilating Lock 25%
Reading 60%

Machines—Boring—

Com. Upright, Without Augers..$2.00
Com. Angular, Without Augers..$2.25
Without Augers.

R. & E. Mfg. Co.:	Upright.	Angular.
Improved No. 3	$4.25	No. 1 $5.00
Improved No. 4	3.75	No. 2, 3.38
Improved No. 5	2.75	
Jennings'...Nos. 1 and 4		35&5%
Millers' Falls		5.75
Snell's, Rice's Pat.	2.50	2.75

Corking—

Reisinger Invincible Hand Power ..... ₩ doz. $48.00

Fence—

Williams Fence Machines ..... each, $5.50

Hoisting—

Moore's Anti-Friction Differential Pulley Block 30%
Moore's Hand Hoist, with Lock Brake. 20%

Ice Cutting—

Chandler's 12½%

Washing—

Boss Washing Machine Co.:	Per doz.
Champion Rotary Banner No. 1..	$54.00
Standard Champion No. 1	48.00
Standard Perfection	36.00
Cintl Square Western	30.00
Uneeda American, Round..	29.00

Mallets—

Hickory ..... 45&5@50%
Lignumvitæ ..... 45&5@50%
Tinners', Hickory and Applewood, doz.. ..... 50@55c

Mangers, Stable—

Swett Iron Works 50%

Mashers, Vegetable—

Western, W. G. Co., Potato ..... 60&10%

Mats—Door—

Elastic Steel (W.G. Co.) 10%

Mattocks—

See *Picks and Mattocks.*

Milk Cans—See *Cans, Milk*

Mills—Coffee, etc.—

Enterprise Mfg. Co ..... 25@30%
National list Jan. 1, 1902 ..... 30%
Parker's Columbia & Victoria.. 50&10@60%
Parker's Box and Side ..... 50&10@60%
Swift, Lane Bros Co 30%

Mowers, Lawn—

Net prices are generally quoted.
Cheap ..... all sizes, $1.75@2.00
Good ..... all sizes, $2.25@2.50

	10	*12*	*14*	*16-inch*
High Grade	*4.25*	*4.50*	*4.75*	*5.00*

Continental ..... 60&5%
Great American 70%
Great American Ball Bearing, new list. 70%
Quaker City 70%
Pennsylvania ..... 60&5%
Pennsylvania, Jr., Ball Bearing 60%
Pennsylvania Golf 50%
Pennsylvania Horse ..... 35&5&5%
Pennsylvania Pony ..... 40&5%
Philadelphia:
Styles M., S., C., K. T ..... 70&5%
Style A, all Steel ..... 65&5%
Style E, High Wheel ..... 70&10&5%
Drexel and Gold Coin, low list...40&5%

Nails—

Cut and Wire. See Trade Report.
Wire Nails and Brads, Papered. List July 20, 1899 ..... 90@90@5%
Hungarian, Finishing, Upholsterers', &c. See Tacks.

Horse—

Nos.	6	7	8	9	10	
Anchor	23	21	20	19	18	.....40&5%
Champ'n	28	26	25	24	23	.....50%
Coleman	13	12	12	11	11	.....net

Nos.	6	7	8	9	10	
New Haven	23	21	20	19	18	.....40&5%
Putnam	23	21	20	19	18	.....33⅓%
New P'tn'm	19	18	17	16	16	.....10&10%
Western, per lb						8½¢

Jobbers' special brands, per lb. 8@8½c

Picture—

	1½	*2*	*2½*	*3*	*3½ in.*
Brass Head	*.55*	*.60*	*.70*	*.95*	*1.00 gro.*
Por. Head	*..*	*1.10*	*1.10*	*1.10*	*.. gro.*

Nippers, See *Pliers and Nippers.*

Nuts—

Cold Punched: Off list.
Mfrs. or U. S. Standard.
Square, plain $5.10
Hexagon, plain $5.60
Square, C. T. & R $5.30
Hexagon, C. T. & R $6.00
Hot Pressed:
Mfrs., U. S. or Nar. Gauge Stan'd.
Square Blank $5 80
Hexagon Blank $6.30
Square Tapped $5 80
Hexagon Tapped $6 30

Oakum—

Best or Government ..... lb. 6½c
Navy ..... lb. 5 c
U. S. Navy ..... lb. 6 c
Plumbers' Spun Oakum 2½c
In carload lots ½c lb. off f.o.b. New York.

Oil Tanks—See *Tanks, Oil.*

Oilers—

Brass and Copper ..... 60¢10%
Tin or Steel ..... 65¢10%
Zinc ..... 65¢10%
Chase or Paragon:
Brass and Copper ..... 45¢10@50%
Tin or Steel ..... 65¢10%
Zinc ..... 65¢10%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4; No. 3, $4.40 ₩ doz. 20%
Malleable, Hammers' Old Pattern, same list ..... 50&10%
American Tube & Stamping Co.:
Spring Bottom Cans ..... 70@70&10%
Railroad Oilers etc ..... 60@60&10%

Openers—Can—

French ..... doz. 55c
Iron Handle ..... doz. 25@27c
Sprague, Iron Hdle..per doz. 35@40c
Sardine Scissors...doz. $1.75@3.00
National 50%
Stowell's Sprague ..... per doz. 35@45¢

Egg—

Nickel Plate ..... per doz., $2.00
Silver Plate ..... per doz., $4.00

Packing—

Asbestos Packing, Wick and Rope, 14½@15c lb.

Rubber—

Sheet, C. I ..... 8@10c
Sheet, C. O. S ..... 9@13c
Sheet, C. B. S ..... 10@14c
Sheet, Pure Gum ..... 50@65c
Sheet, Red ..... 40@50c
Jenkins' '96, ₩ lb 80¢ ..... 25@25&5%

Miscellaneous—

American Packing ..... 7@10c lb.
Cotton Packing ..... 16@25c lb.
Italian Packing ..... 9@12½c lb.
Jute ..... 4@4½c lb.
Russia Packing ..... 8@11c lb.

Pails—Creamery

S. S. & Co., with gauges.. No 1 $6.25; No. 2, $5.50 ₩ doz.

Galvanized—

Price per doz.

Quart	*10*	*12*	*14*
Water, Regular	*1.50*	*1.75*	*2.00*
Water, Heavy	*2.75*	*3.00*	*3.25*
Fire, Rd. Bottom	*2.50*	*2.60*	*2.80*
Well	*2.25*	*2.50*	*2.75*

Pans—Dripping—

Standard List ..... 60¢10@60&10¢5%

Fry—

Common Lipped:					
No.	*1*	*2*	*3*	*4*	*5*
Per doz.	*$0.85*	*1.00*	*1.10*	*1.30*	*1.50*

Roasting and Baking—

Regal, S. S. & Co., ₩ doz., Nos. 5, $4.50; 10 $5.25; 20, $5.75; 30, $6.25.
Savory, ₩ doz., net, Nos. 200, $9.00; 400, $15.00.
Simplex, ₩ gro.:

No.	40	50	60	140	150	160
	$30.00	35.0	42.00	31.00	39.60	46.00

Paper—Building Paper—

Asbestos:	*lb.*
Building Felt	*2¾c*
Mill Board, sheet, 40 x 40 inches	*3½c*
Mill Board, roll, thicker than 1-16 inch	*3½c*
Mill Board, roll, 1-16 in. thick and less	*2½c*

	Per roll
Rosin Sized Sheathing:	*500 sq. ft.*
Light wt. 25 lbs. to roll	*$0.50@0.45*
Medium wt. 30 lbs. to roll	*$0.45@0.50*
Heavy wt., 50 lbs. to roll	*$0.65@0.70*
Black Water Proof Sheathing, 500 Sq ft. 1 ply, 65c; 2 ply, 85c; 3 ply, $1.10; 4 ply, $1.25.	
Deafening Felt, 2, 3 and 4½ sq. ft. to lb., ton $41.00	
Red Rope Roofing, 250 sq. feet per roll $1.75	

NOTE.—*These goods are often sold at delivered prices.*

Tarred Paper.

1 ply (roll 300 sq. ft.), ton..$32.50@35.50
2 ply, roll 108 sq. ft ..... 55@60c
3 ply, roll 108 sq. ft ..... 78@80c
Slater's Felt (roll 500 sq. ft.) 75c

NOTE.—*Above prices often include delivery, and are for Eastern territory, where prices are controlled by agreement between the manufacturers. In open territory much lower prices are current.*

R. R. M. Stone Surfaced Roofing (roll 110 sq. ft.) $2.25

Sand and Emery—

Flint Paper and Cloth..50c&10@60%
Garnet Paper and Cloth 25%
Emery Paper and Cloth..50c&10@60%

Parers—Apple—

Advance	₩ doz.	$4.00
Baldwin	₩ doz.	$4.00
Bonanza Improved	each	$6.50
Daisy	₩ doz	$4.00
Dandy	each	$7.50
Eureka Improved	each	$20.00
Family Bay State	₩ doz.	$15.00
Improved Bay State	₩ doz.	$36.00
Little Star	₩ doz	$5.00
New Lightning	₩ doz.	$7.00
Reading 72	₩ doz.	$3.25
Reading 78	₩ doz.	$6.25
Rocking Table	₩ doz.	$6.20
Turn Table '98	₩ doz.	$6.00
White Mountain	₩ doz.	$5.00

Potato—

Saratoga ..... ₩ doz. $7.00
White Mountain ..... ₩ doz. $6 00

Picks and Mattocks—

List Feb. 23, 1899 ..... 70¢10@75¢10%

Pinking Irons—

See *Irons, Pinking.*

Pins—Escutcheon—

Brass ..... 60@60¢10%
Iron, list Nov. 11, '85 ..... 60@60¢10%

Pipe, Cast Iron Soil—

Standard, 2-6 in ..... 50¢10%
Extra Heavy, 2-6 in 65%
Fittings 70

Pipe, Merchant,

Steel Carload Lots, f.o.b, Pittsburgh.

Merchant Pipe.	*Black.*	*Galvanized.*
⅛, ¼, ⅜ inch	*68%*	*58%*
½-inch	*71%*	*61%*
¾ to 6 inch	*75%*	*65%*
7 to 12 inch	*71½*	*61%*

Pipe, Sewer—

Jobbers' Prices—

Standard Pipe and Fittings, 2 to 2½ in.	
New England	*67%*
New York and New Jersey	*70%*
Maryland, Delaware, East Penn.	*72%*
West Penn and West Va	*75%*
Virginia	*75%*
Ohio, Michigan and Ky	*75%*
Indiana	*77%*

Carload lots are generally delivered.

Pipe, Stove—

Edwards' Nested Stove Pipe:	C. L.	L. C. L.
5 in., per 100 joints	$7.00	$8 00
6 in., per 100 joints	7.50	8.50
7 in., per 100 joints	8.50	9.50

Planes and Plane Irons—

Wood Planes—

Bench, First quality ..... 40&5@40&10%
Bench, Second qual ..... 50&5@50&10%
Molding ..... 33⅓&5@33⅓&10%
Bailey's (Stanley R. & L. Co) 5&10@25&10&10%
Chapin-Stephens Co.:
Bench, First Quality ..... 40@40&10%
Bench, Second Quality ..... 50@50&10%
Molding ..... 33⅓@33⅓&10%
Toy and German ..... 40@40&10%
Chaplin's 60%
Ohio Tool Co.:
Bench, First Quality ..... 40@40&10%
Bench, Second Quality ..... 50@50&10%
Molding ..... 33⅓@33⅓&10%
Adjustable Wood Bottom 60%
Union 60%

Iron Planes—

Bailey's (Stanley R. & L. Co) ..... 25&10@25&10&10%
Chaplin's Iron Planes ..... 50&10%
Miscellaneous Planes (Stanley R. & L. Co.) ..... 20&10@20&10&10%
Ohio Tool Co.'s Iron Planes 60%
Sargent's ..... 50&10%
Union 60%

Plane Irons—

Wood Bench Plane Irons ..... 30¢5@30¢10%
Buck Bros 30%
Chapin-Stephens Co ..... 30@30&10%
Ohio Tool Co 30%
Stanley R. & L. Co ..... 20&10@20&10&10%
Union 50%
L. & L. J. White ..... 20&5@25%

Planters, Corn, Hand.

Kohler's Eclipse ..... ₩ doz. $8.50

Plates—

Felloe ..... lb. 3½@4c
Self-Sealing Pie Plates (S. S. & Co.), ₩ doz. $2.00 ..... 50%

Pliers and Nippers—

Button Pliers ..... 75@75¢10%
Gas Burner, per doz., 5 in., $1.25@ $1.30; 6 in., $1.45@$1.50
Gas Pipe.. 7 8 10 12-in.
$2.00 $2.25 $3.00 $3.75
Acme Nippers ..... 50@50&5%
Cross & Garver Mfg. Co.:
American Button ..... 75&10%
Cronk's 60%
Improved Button ..... 60&10%
Stub's Pattern 50%
Combination and others 33⅓%
Heller's Farriers' Nippers, Pincers, and Tools 40&10@40&10&10%
P., S. & W. Tinners Cutting Nippers, 30@30&10%
Swedish Side, End and Diagonal Cutting Pliers 50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds 40%

Plumbs and Levels—

Chapin Stephens Co.:
Plumbs and Levels ..... 30@30&10&10%
Chapin's Imp. Brass Cor ..... 40@40&10&10%
Pocket Levels ..... 30@30&10&10%
Disston's Plumbs and Levels 70%
Disston's Pocket Levels 70
C. E. Jennings & Co.'s Iron 33⅓
C. E. Jennings & Co.'s Iron, Adjustable ..... 40&5%
Stanley R. & L. Co ..... 30@30@30&10&10%

Stanley's Duplex.....20@20&10&10%
Woods' Extension.....33⅓&

Poachers, Egg—

Buffalo Steam Egg Poachers, ₱ doz., No. 1, $4.50; No. 2, $5.00; No. 3, $5.00; No. 4, $12.00.....50&

Points, Claziers'—

Bulk and 1 lb. papers.....lb. 8¾c
¼-lb. papers.....lb. 9¼c
¼-lb. papers.....lb. 9½c

Pokes, Animal—

Ft. Madison Hawkeye.....₱ doz. $3.25
Ft. Madison Western.....₱ doz. $4.00

Police Goods—

Manufacturers' Lists.....25@25&5%
Tower's.....25%

Polish—Metal—

Prestoline Liquid, No. 1 (¼ pt.), ₱ doz. $3.00; No. 2 (1 qt.), $9.72.....40%
Prestoline Paste.....40&10%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ₱ doz. 50¢; ₱ gr. $4.50; ½ lb boxes, ₱ doz. $1.25; 1 lb boxes, ₱ doz. $2.25.
U. S. Liquid, 8 oz. cans, ₱ doz. $1.25; ₱ gr. $12.00.
Barkeepers' Friend Metal Polish, ₱ doz. $1.75; ₱ gr. $18.00.
Wynn's White Silk, ¼ pt. cans, ₱ doz.....$2.00

Stove—

Black Eagle Benzine Paste, 5 lb cans.....₱ lb 10¢
Black Eagle, Liquid, ½ pt. cans ₱ doz. 75¢
Black Jack Paste, ¾ lb cans, ₱ gro. $9.00
Black Kid Paste, ¼ lb can.....each, $0.65
Ladd's Black Beauty, gr. $10.00.....50%
Joseph Dixon's, ₱ gr. $5.75.....10%
Dixon's Plumbago.....₱ lb 8¢
Fireside.....₱ gr. $3.50
Gem, ₱ gr. $4.50.....10%
Japanese.....₱ gr. $3.50
Jet Black.....₱ gr. $3.50
Peerless Iron Enamel, 10 oz. cans.....₱ doz. $1.50
Wynn's:
Black Silk, 5 lb pail.....each 70¢
Black Silk, ½ lb box.....₱ doz. $1.00
Black Silk, 5 oz. box.....₱ doz. $0.75
Black Silk, ½ pt. liq.....₱ doz. $1.00

Poppers, Corn—

1 qt., Square.....gro. $9.00
1 qt., Round.....gro. $10.00
1½ qt., Square.....gro. 11.00
2 qt., Square.....gro. 13.00

Post Hole and Tree Augers and Diggers—

See also *Diggers, Post Hole, &c.*

Posts, Steel—

Steel Fence Posts, each, 5 ft., 42¢; 6 ft., 46¢; 6½ ft., 48¢.
Steel Hitching Posts, each.....$1.30

Potato Parers—

See *Parers, Potato.*

Pots— Glue—

Enameled.....40%
Tinned.....35%

Powder—

In Canisters:
Duck, 1 lb. each.....15c
Fine Sporting, 1 lb. each.....75c
Rifle, ½-lb. each.....15c
Rifle, 1-lb. each.....25c
King's Semi-Smokeless:
Keg (25 lb bulk).....$6.50
Half Keg (12½ lb bulk).....$3.50
Quarter Keg (6¼ lb bulk).....$1.90
Case 24 (1 lb cans bulk).....$8.50
Half case 12 (1 lb cans bulk).....$4.50

King's Smokeless:	Shot Gun	Rifle
Keg (25 lb bulk)	$12 00	$15.00
Half Keg (12½ lb bulk)	6.25	7.75
Quarter Keg (6¼ lb bulk)	3.25	4.00
Case 24 (1 lb cans bulk)	14.00	17 00
Half case 12 (1 lb cans blk)	7.25	8.75

Robin Hood Smokeless Shot Gun..50&20%

Presses—Fruit and Jelly—

Enterprise Mfg. Co.....30@25%

Seal Presses—

Morrill's No. 1, per doz. $30.00.....50%

Pruning Hooks and Shears—See *Shears.*

Pullers Cork—

Invincible Cork Puller.....$21.00

Pullers, Nail—

Cyclops.....50%
Miller's Falls, No. 3, per doz. $12.00.....33⅓&10%
Pearson No. 1, Cyclone Spike Puller, each $30.00.....50%
Pelican, ₱ doz. $9.00.....40&10%
Scranton, Case Lots:
No. 4B (large).....$5.50
No. 3B (small).....$3.00
Smith & Hemenway Co.:
Diamond B, No. 3, case lots, ₱ doz $6.00
Diamond B, No. 2, case lots, ₱ doz $5 50
Giant No. 1, ₱ doz. $18; No. 2, $10.50; No. 3, $15.....40%

Pulleys—Single Wheel—

Inch.....	2	2½	3
Awning...doz	$0.55	.85	1.15

Hay Fork, Swivel or Solid Eye.....doz., 4 in., $1.15; 5 in., $1.40

Inch.....	2	2½	2½
Hot House.doz	$0.70	.90	1.25
Inch.....	1¼	1½	1¾
Screw.....doz	$0.16	.19	.23
Inch.....	1¼	2	2½
Side.....doz	$0.30	.40	.55
Inch.....	1½	1¾	2
Tackle....doz	$0.30	.42	.58

Stowell's:
Ceiling or End, Anti-Friction...60&10%
Dumb Waiter, Anti-Friction...60&10%
Electric Light.....50%
Side, Anti-Friction.....60&10%

Sash Pulleys—

Common Frame; Square or Round End, per doz., 1¾ and 2 in...16@19c
Auger Mortise, no Face Plate, per doz. 1¾ and 2 in......16@19c
Auger Mortise, with Face Plate, per doz., 1¾ and 2 in......16@19c
Acme.....1¾ in., 16¢; 2 in., 19¢
Fox-All-Steel, Nos. 3 and 7, 2 in. ₱ doz 50%
Grand Rapids All Steel Noiseless...50%
Ideal.....70&10%
Niagara.....1¾ in., 16¢; 2 in., 19¢
No. 26, Troy....1¾ in., 14½¢; 2 in., 16½¢
Star.....1¾ in., 16¢; 2 in., 19¢
Tackle Blocks—See *Blocks.*

Pumps—

Cistern.....60@65&10%
Pitcher Spout.....80@80&10%
Wood Pumps, Tubing, Etc...45@5%
Barnes Dbl. Acting (low list).....50&10%
Barnes' Pitcher Spout.....80%
Contractors' Rubber Diaphragm No. 2 B. & L. Block Co.....$16.00
Daisy Spray Pump.....₱ doz. $7.20
Flint & Walling's, Fast Mail Hand, (Low List).....55%
Flint & Walling's Fast Mail (low list)...55&5%
Flint & Walling's Tight Top Pitcher.80%
National specialty Mfg. Co., Measuring $4.00.....30%
Mechanical Sprayer.....$7.20
Myer's Pumps, low list.....50%
Myers' Power Pumps.....50%
Myers' Spray Pumps.....50%

Pump Leathers—

Plunger and Lower Valve—Per gro.:

Inch..	2	2¼	2½	2¾
	$2.20	2.50	2.75	3.00
Inch..	3	3¼	3½	3¾	4
	$3.30	3.60	3.85	4.10	4.40

Plunger Cup Leathers—Per 100:

Inch	2½	3	3½	4
	$2.75	3 85	5.00	6.00

Punches—

Saddlers' or Drive, good..doz. 50@75c
Spring, single tube, good quality...$1.75@2.00
Revolving (4 tubes)...doz. $3.50@3.75
Bemis & Call Co.'s Cast Steel Drive....50%
Bemis & Call Co.'s Check.....55%
Morrill's No. 1 (A.B.C.).₱ doz., $15.00..50%
No. 2, ₱ doz. $22.50.....50%
Hercules, each $7 50.....50%
Niagara Hollow Punches.....40%
Niagara Solid Punches.....55&10%
Steel Screw, B & K. Mfg. Co.....50%
Tinners' Hollow, P., S. & W. Co.35@35&5%
Tinners' Solid, P., S. & W. Co., ₱ doz., $1.44.....60%

Rail— Barn Door, &c.—

Cast Iron, Barn Door: Flange Screw Holes for Rd. Groove Wheels:

⅛	¾	¾	*In.*
$1.70	$2.10	$3 00	*100 feet.*

Angular for Sq. Groove Wheels;

Small.	*Med.*	*Large.*	
$1.50	1 90	2.60	*100 feet.*

Sliding Door, Iron Painted..2¼@2¾c
Sliding Door, Wrought Brass, 1¼ in.....lb.36c...30%
Allith Mfg. Co.:
No. 0, Reliable Hanger Track, ₱ ft..3½¢
No. 2, Reliable Hanger Track, ₱ ft...7¢
Crong's:
Double Braced Steel Rail, ₱ foot....8¢
O. N. T. Rail.....2¾¢
Griffin's:
xxx per 100 ft., 1 x 3-16 in., $3.00; 1¼ x 3-16 in., $3.50.
Hinged Hanger, per 100 ft. 1 x 3-16 in., $3.10; 1¼ x 3-16 in., $3.60.
Lane's:
Hinged Track, ₱ 100 ft., 1 in., $3.70; 1¼ in. $4.40
O. N. T., ₱ 100 ft., 1 inch, $2.75; 1¼ inch, $3.50; 1½ inch $4.00.
Standard, 1¼ in., ₱ 100 ft.....4.00
Lawrence Bros.:
₱ 100 ft. No. 201, $4.00; No. 202, $4.40
New York, 1 x 3-16 in., ₱ 100 ft. $2.75
McKinney's:
Hinged Hanger Rail ₱ foot, 11¢....50%
None Better.....₱ ft. 3½¢
Standard.....₱ ft. 4¢
Myers' Stayon Track.....60%
Richards Mfg. Co.:
Common 1 x 3-16, $2.75; 1¼ x 3-16, $3.25; 1¼ x 3 16, $3.50
Special Hinged Hanger Rail.....$4.40
Fire Door Track, ₱ ft. 2½ x ⅜, 15¢; 3½ x ¾, 9¢.
Lag Screw-Rail, No. 65.....40%
Gauge Trolley Track, ₱ ft. No. 31, 10¢; No. 32, 15¢; No. 33, 24¢.
Safety Door Hanger Co.'s Storm King Safety.....60%
Safety Door Hanger Co.'s U.S. Standard.....60%
Stowell's:
Cast Rail.....₱ ft. 1¾¢
Steel Rail, Plain.....2¾
Wrought Bracket, 1 3-16 in.....₱ ft. 3¢
Wrought Bracket, 1¼x5-15.....₱ ft. 7¢
Sweet's Hyle, per ft. 11¢.....60%
P. L. B. Steel Rail, ₱ 100 ft.....$3.00
No. 0, 1 x 3-16, ₱ 100 ft.....$2.75

Rakes—

Net Prices, Malleable Rakes:

10	*12*	*14*	*16-tooth*
Shank....$1.50	1.60	1.75	1.85
Socket....$1.65	1.80	1.95	2.10

Steel, Garden and Gravel, Aug. 1, '99 List.....70%
Weldless Steel.....75&5%
Malleable Iron, Garden.....70&10%
Lawn Rakes, Metal Head, per doz.
20 teeth.....$3.25@3.50
24 teeth.....$3.50@3.75
Fort Madison Red Head Lawn.....$3 25
Fort Madison Blue Head Lawn.....$2.70
Jackson Lawn, 20 and 30 teeth, ₱ doz., net, $4.25
Kohler's:
Lawn Queen, 20-tooth, ₱ doz.....$3 45
Lawn Queen, 24-tooth, ₱ doz.....$3.60
Paragon, 20 tooth, ₱ doz.....$2.75
Paragon, 24-tooth, ₱ doz.....$3.00
Steel Garden, 14-tooth, ₱ doz.....$2.98
Malleable Garden, 14-tooth, ₱ doz..$1.75@2.00

Rasps, Horse—

Disston's.....75%
Heller Bros.....70&5@70&10&5%
McCaffrey's American Standard.....60&10&5%
New Nicholson.....70&10@75%
see also *Files.*

Razors—

Borasic.....60%
Fox Razors, No. 42, ₱ doz. $30.00
Fox Razors, No. 44, ₱ doz. $20.00
Fox Razors, No. 87, Platina, ₱ doz. $25.00 } 40&5 dis.
Red Devil.....60%
Silberstein:
Carbo Magnetic.....$18.00
Griffon, No. 65.....$15.00
Griffon, No. 00.....$12.00
All other Razors.....40%

Safety Razors—

Silberstein.....40%

Reels— Fishing—

Henshaw:
M 6, Q 6, A 6, B 6, M 9¼, M 10, Q 10, A 10, B 10, 400S, Rubber Populo, Nickeled Populo.....20%
Aluminum, German Silver, Bronze.25%
1240 N, 124 N.....20%
3004 N, 06 N, 6 RM, G 9.....25%
4 N, 6 PN, 24 N, 26 PN.....20%
2904 P.....33⅓%
2904 PN.....33⅓%
0924 N.....33⅓%
02084 N.....33⅓%
002904 PN.....33⅓%
802 N.....33⅓%
986 PN, 2904 N, 974 PN.....25%
5009 P N, 5009 N.....20%
Competitor, 102 P, 102 PN, 202 P, 202 PN, 102 PR, 202 PR.....25%
304 P, 304 PN, 00304 P, 00304 PN.33⅓%

Registers—*List July 1, 1903.*

Black Jap
White Jap
Bronzed
Nickel Plated
Electro Plated
} 75@75&10

Revolvers—

Single Action.....85@90c
Double Act n, except 44 cal......$1.90
Double Action, 44 caliber.....$2 05
Automatic.....$3.60
Hammerless.....$4.10
Note.—Jobbers frequently cut the above prices of manufacturers for small trade.

Riddles, Hardware Grade

16 in., per doz.....$2.25@$2.50
17 in., per doz.....$2.50@$2.75
18 in., per doz.....$2.75@$3 00

Rings and Ringers—Bull Rings—

2	*2½*	*3 Inch*	
Steel.....$0 70	0.75	0.80	*doz.*
Copper..... 1.00	1.15	1.40	*doz.*

Read's Improved Self-Piercing, Copper, 2 in., ₱ doz., $1.25; 2½ in., $1.50; 3 in., $1.75.

Hog Rings and Ringers—

Hill's Rings...gro. boxes, $4.25@4.50
Hill's Ringers, Gray Iron. doz. 50@55c
Hill's Ringers, Mal. Iron, doz. 70@75c
Blair's Rings.....per gro. $5.00@5.25
Blair's Ringers...per doz. $0.60@ .65
Brown's Rings....per gro. $5.25@5.50
Brown's Ringers...per doz. $0.65@ .70

Rivets and Burrs—

Copper.....60¢&@60¢&10%
Iron or Steel.....75¢&5@75¢&10%

Rollers—

Acme, Stowell's Anti-Friction.....50%
Barn Door, Sargent's list.....60%
Cronk's Stay.....75¢
Cronk's Brinkerhoff.....90¢
Lane's Stay.....40%
Richards' Stay:
Handy Adj. and Reversible No. 58....90%
O. K. Adj. and Reversible, No. 58....50%
Lag Screw, Nos. 55 and 57.....50%
Fire Door, No. 59.....40%
Favorite, No. 54.....40%
Stowell's Barn Door Stay.....₱ doz. $1 00
Swett's Anti Friction.....30%
Screw and Spike Stay.....₱ doz 65¢
Hinge Adjustable Stay.....₱ doz. 90¢

Rope—

Manila. 7-16 in. diam and larger, tarred or untarred.....lb. 11½c
Manila, Hay, Hide and Bale Ropes, Medium and Coarse.lb. 11½c
Sisal, 7-16 in. diam. and larger:
Mixed.....lb. 7½c
Pure.....lb. 9 c
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse:
Mixed.....lb. 7½c
Pure.....lb. 9 c
Sisal, Tarred, Medium Lath Yarn:
Mixed.....lb. 7 c
Pure.....lb. 8½c
Cotton Rope: —Lb.—
Best.....¼-in. and larger..15@25c
Medium..¼ in. and larger..16@18c
Com....¼-in. and larger..12@13c
Jute Rope:
Thread No. 1, ¼-in. and up, lb. 6 c
Thread No. 2, ¼-in. and up, lb. 5½c
Wool Twine.....lb. 5½c
Old Colony Manila Transmission Rope, ₱ lb 17½¢

Wire Rope—

Galvanized.....47½&5%
Plain.....55¢&5%

Ropes Hammocks—

Covert Mfg. Co.:
Jute.....40&5&5%
Sisal.....30%
Covert Saddlery Works.....60&5%

Rules—

Boxwood.....60&10¢10%
Ivory.....35¢10@35¢10¢5%
Chapin-Stephens Co.:
Boxwood.....60@90&10%
Ivory.....35@35¢10&10%
Miscellaneous.....50@50&10&10%
Combination.....55@55&10%
Stationers'.....10&10&10%
Lufkin's Steel.....50&10%
Lufkin's Lumber.....20%
Stanley R. & L. Co.:
Boxwood.....60@60&10%
Ivory.....35@35&10&10%
Upson Nut Co.:
Boxwood.....60@60&10%
Ivory.....35&10@35&10&10%

Sash Balances—See *Balance Sash.*

Sash Locks—See *Locks, Sash*

Sash Weights—See *Weights, Sash.*

Sausage Stuffers or Fillers—see *Stuffers or Fillers, Sausage.*

Saw Frames—See *Frames, Saw*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—

Atkins:
Circular.....50%
Band.....50&10@60%
Cross Cuts.....35&5%
Mulay, Mill and Drag.....50%
One-Man Saw.....40%
Wood Saws.....40%
Hand, Compass, &c.....40%
Chapin-Stephens Co.:
Turning Saws and Frames....80@30&10%
Diamond Saw & Stamping Works:
Sterling Kitchen Saws.....30&10&5%
Disston's:
Circular, Solid and Inserted Tooth..30%
Band, 2 to 14 in. wide.....60%
Band, ¼ to 1¼.....60%
Crosscuts.....50%
Narrow Crosscuts.....35%
Mulay, Mill and Drag.....50%
Framed Woodsaws.....35%
Woodsaw Blades.....35%
Woodsaw Rods.....25%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8.....25%
Hand Saws, Nos 7, 107, 107½, 3, 1, 0, 00, Combination.....30%
Compass, Keyhole, &c.....25%
Butcher Saws and Blades.....35%
C. E. Jennings & Co.'s:
Back Saws.....25%
Butcher Saws.....30%
Compass and Key Hole Saws.....35&5%
Framed Wood Saws.....30%
Hand Saws.....20&2½%
Wood Saw Blades.....35%
Millers Falls:
Butcher Saws.....15&10%
Star Saw Blades.....15&10%
Peace & Richardson's Hand Saws.....30%
Simonds':
Circular Saws.....50%
Crescent Ground Cross Cut Saws..35%
One-Man Cross Cuts.....40&10%
Gang Mill, Mulay and Drag Saws..50%
Band Saws.....50%
Back Saws.....25@25&7½%
Butcher Saws.....35@35&7½%
Hand Saws.....25@25&7½%
Hand Saws, Bay State Brand.....45%
Compass, Keyhole, &c.....25@25&7½%
Wood Saws.....25@35&7½%
Springfield Mach. Screw Co.:
Diamond Kitchen Saws.....40&10@50%
Butcher Saws Blades.....35@40%
Wheeler, Madden & Clemson Mfg. Co.'s
Cross Cut Saws.....50%

Hack Saws—

Atkins' Hack Saw Blades A A A.....25%
Disston:
Concave Blades.....25%
Keystone.....40%
Hack Saw Frames.....30%
Fitchburg File Works, The Best.....25%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180.....40&7½%
Hack Saws, Nos. 173, 180, complete.....40&7½%
Goodell's Hack Saw Blades.....40%
Griffin's Hack Saw Frames..35&5&10%
Griffin's Hack Saw Blades.....35&5&10%
Springfield Mach. Screw Co.:
Diamond Hack Saw Blades.....35%
Diamond Hack Saw Frames.....50%
Star Hack Saws and Blades.....15&10%
Sterling Hack Saw Blades.....35%
Sterling Hack Saw Frames.....30& 0&5%

Scroll—

Barnes' No. 7, $15.....25%
Barnes' Scroll Saw Blades.....40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18; with boring attachment, $20.....20%
Lester, complete, $10.00.....15&10%
Rogers, complete, $4.00.....15&10%

Scalers, Fish—

Covert's Saddlery Works.....60&10%

Scales—

Family, Turnbull's.....60@50&10%
Counter:
Hatch, Platform, ½ oz to 8 lbs. doz. $5.50
Two Platforms, ½ oz to 8 lbs. doz. $16
Union Platform, Plain..$1.70@1.90
Union Platform, Striped $1.85@2.15
Chatillon's:
Eureka.....2%
Favorite.....40%
Grocers' Trip Scales.....50%
Chicago Scale Co.:
The "Little Detective," 25 lbs.....50%
Union or Family No. 2.....60%
Portable Platform (reduced list).....50%
Wagon or Stock (reduced list)...25@35%
"The Standard" Portables.....50%
"The Standard" R. R. and Wagon.....50%

Scrapers—

Box, 1 Handle.....doz. $2.00@2.25
Box, 2 Handle.....doz. $2 60@2.85
Ship Light, $2.00; Heavy, $4.50
Adjustable Box Scraper (S. R. & L. Co) $6.00.....30&30&10%
Chapin-Stephens Co., Box.....50&50&10%

Screens, Window, and Frames—

Flyer Pattern Screens...60&5@60&5&2½%
Maine Screen Frames.....40&10&5%
Perfection Screens.....60&5@60&5&2½%
Phillips' Screen Frames..60&5@60&5&2½%
See also *Doors.*

Screws—Bench and Hand—

Bench, Iron..doz. 1 in., $2.50@2.75; 1¼, $3.00@3.25; 1¼, $3.50@3.75
Bench, Wood, Beech....doz. 30@30&5%
Hand, Wood.....30@30&5%
R. Bliss Mfg. Co., Hand.....30@30&10%
Chapin-Stephens Co., Hand.....30@30&10%
Ohio Tool Co., Bench and Hand.....30%

Coach, Lag and Hand Rail—

Lag, Common Point, list Oct. 1, 99.....80&5%
Coach and Lag, Gimlet Point, list Oct. 1, '99.....80%
Hand Rail, list Jan. 1, '81. 70&10@75%

Jack Screws—

Standard List.....75&10@80&5%
Millers Falls.....50&10&10%
Millers Falls, Roller.....50&10%
P., S. & W.....50@50&5%
Sargent.....70&10%
Swett Iron Works.....75&10@80&5%

Machine—

List Jan. 1, '98.
Flat or Round Head, Iron..50@50&10%
Flat or Round Head, Brass 50@50&10%

Set and Cap—

Set (Iron or Steel).....78% } *Extra*
Sq. Hd. Cap.....70% } *10&5*
Hex. Hd. Cap.....70% } *often*
Rd. or Fillister Hd. Cap 65% } *given.*

Wood—

List July 23, 1903.
Manufacturers' printed discounts:
Flat Head, Iron.....87½&10@...%
Round Head, Iron.....85&10@...%
Flat Head, Brass.....85&10@...%
Round Head, Brass.....80&10@...%
Flat Head, Bronze....77½&10@...%
Round Head, Bronze.....75&10@...%
Drive Screws.....87½&10%

Scroll Saws—See *Saws, Scroll.*

Scythes—

Per doz.
Clipper Pattern, Grass...$4.25@$5.00
Full Polished Clipper.....$4.75@$5.50
Grain.....$7.00@$7.50
Clipper, Grain.....$7.75@$8.25
Weed and Bush.....$4.50@$5.00

Seeders—Raisin—

Enterprise.....25@30%

Sets—Awl and Tool—

Brad Awl and Tool Sets:
Wood Hdle., 10 Awls doz. $2.00@2.25
Wood Hdle., 14 Awls, 6 Tools doz. $3.50@3.60
Aiken's Sets, Awl and Tools:
No. 20, ₱ doz. $10.00.....50&10&10%
Fray's Adj. Tool H'dls...Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7.....50%
C. E. Jennings & Co.'s Model Tool Holders.....30%
Millers Falls Adj. Tool H'dls, No. 1, $12; No. 4, $12; No. 5, $18.....15&10%
Stanley's Excelsior:
No. 1, $7.50; No. 2 $4.00; No. 3, $5.50.....30&30&10&10%

Garden Tool Sets—

Ft. Madison Three Pieces, Hoe, Rake and Shovel.....₱ doz. sets.....$9.00

Nail—

Square.....per gro. $2.25@2.50
Round, Blk. and Pol., assorted.....gro. $1.80@2.00
Octagon.....gro. $3.50@3.75
Buck Brothers.....27½%
Cannon's Diamond Point, ₱ gr. $12..25%
Mayhew's.....per gro. $9.00
Snell's Cannon's Diamond Pt ₱ gro $7.20
Snell's Corrugated, Cup Pt. per gro. $7.20
Snell's Knurled, Cup Pt....per gro $7.20
Springfield Mach. Screw Co.:
Diamond Knurled, Cup Pt., per gro. $7.50

Rivet—

Regular list.....75@75&10%

Saw—

Aiken's:
Genuine.....50&10%
Imitation.....50&10%
Atkin's:
Criterion.....40%
Adjustable.....40%
Bemis & Call Co's.:
Cross Cut.....30%
Plate.....20%
Disston's Star and Monarch.....25%
Morrill's No. 1, $15.00.....50%
Nos. 3 and 4, Cross Cut, $20.83.....50%
No. 5, Mill, $30.00.....50%
Nos. 10, 11, 98, $15.61.....50%
No. 1 Old Style, $10.00.....50%
Special, $16.25.....50%
Giant Royal Cross Cut.....₱ doz. $8.50
Royal, Hand.....₱ doz. $5.0
Taintor Positive.....₱ doz $6.75

Shaving—

Fox Shaving Sets, No. 30, per doz. $24.00 net

Sharpeners, Knife—

Chicago Wheel & Mfg. Co.....65%

Shaves, Spoke—

Iron.....doz. $1.00@1.15
Wood.....doz. $1.75@2.00
Bailey's (Stanley R. & L. Co).....20@30&10&10%
Chapin-Stephens Co.....40@50&10&10%
Goodell's, ₱ doz. $9.00.....15&10%
Wood's F1 and F2.....50%

Shears—

Cast Iron...	*7*	*8*	*9 in.*
Best....	*$16.00*	*18.00*	*20.00 gro.*
Good.....	*$13.00*	*15.00*	*17.00 gro.*
Cheap.....	*$5.00*	*6.00*	*7.00 gro.*

Straight Trimmers, &c.:
Best quality, Jap.....70@70&10%
" Nickel.....60@60&10%
Fair qual. Jap.....80@80&5%
" Nickel.....75@75&10%
Tailors' Shears.....40@40&10%
Acme Cast Shears.....40@40&5%
Heinisch's Tailors' Shears.....30%
Wilkinson's Hedge.....1900 list 45%
Wilkinson's Branch, Lawn and Border 40%
Wilkinson's Sheep.....1900 list. 50%

Tinners' Snips—

Steel Blades.....20&5@20&10
Steel Laid Blades.....40&10@40&5%
Forged Handles, Steel Blades, Berlin 40@40&10%
Heinisch's Snips.....40%
Jennings & Griffin Mfg. Co.'s, 6½ to 10 inch.....50%
Niagara Snips.....40%
P., S & W. Co.....20%

Pruning Shears and Tools—

Cronk's Grape Shears.....33⅓%
Cronk's Pruning Shears.....33⅓%
Disston's Combined Pruning Hook and Saw, ₱ doz. $18.00.....25%
Disston's Pruning Hook, ₱ doz. $12.00.....25%
John T. Henry Mfg. Co.:
Pruning Shears, all grades.....40@40&5%
Orange Shears.....50&10@50&20%
Grape.....40&10@50%
Tree Pruners.....75%
P., S. & W. Co.....33⅓%

Sheaves—Sliding Door—

Stowell's Anti-Friction.....50%
Patent Roller Hatfield's, Sargent's list, 70&10%
Reading.....60%
R. & E. list.....33⅓%
Wrightsville Hatfield Pattern.....80%

Sliding Shutter—

Reading list.....45&20%
R. & E. list.....33⅓%
Sargent's list.....50&10%

Shells—Shells, Empty—

Brass Shells, Empty:
First quality, all gauges.....60&5%
Climax, Club, Rival, 10 and 12 gauge..65&5%
Paper Shells, Empty:
Acme, Ideal, Leader, New Rapid, Magic 10, 12, 16 and 20 gauge..25&5%
Blue Rival, New Climax, Challenge, Monarch, Defiance, Repeater, Yellow Rival, 10, 12, 16 and 20 gauge.....30%
Climax, Union, League, New Rival 10 and 12 gauge.....25%
Climax, Union, League, New Rival, 14, 16 and 20 gauge ($7.50 list)..20%
Expert, Metal Lined and Pigeon, 10, 12, 16 and 20 gauge.....33⅓&5%
Robin Hood, Low Brass.....20&10%
Robin Hood, High Brass.....50&10%

Shells, Loaded—

Loaded with Black Powder.....40%
Loaded with Smokeless Powder, medium grade.....40&5%
Loaded with Smokeless Powder, high grade.....40&10&10%
Robin Hood Smokeless Powder:
Robin Hood, Low Brass.....50%
Comets, High Brass.....50&10&5%

Shoes, Horse, Mule, &c.—

F. o. b., Pittsburg:
Iron.....per keg $4.00
Steel.....per keg 3.75
Burden's, all sizes ₱ keg.....$3.90

Shot—

Drop, up to B, 25-lb. bag.....$1.60
Drop, B and larger, per 25-lb. bag $1.85
Buck, 25-lb. bag.....$1.85
Chilled, 25-lb. bag.....$1.85

Shovels and Spades—

Association List, Nov. 15, 1902.....40%

Sieves and Sifters—

Hunter's Imitation, gro. $10.50@11.00
Buffalo Metallic Dued. S. S. Co., ₱ gr.:

14&16	16&18	18&20
$13.20	$13.50	$14.40

Shaker Barlers Pat.) Flour Sifters, ₱ doz., $2.00.....30%

Sieves, Tin Rim—

Per dozen.

Mesh.....	*14*	*16*	*18*	*20*
Black, full size...	*$1.20*	*1.25*	*.50*	*1.35*
Plated, full size..	*$1.30*	*1.35*	*1.40*	*1.45*
Black, scant....	*....*	*$6.95*	*1.00*	*1.05*

Sieves, Wooden Rim—

Nested, 10, 11 and 12 Inch.
Mesh 18, Nested, doz.....$0.90@0.95
Mesh 20, Nested, doz.....1.00@1.05
Mesh 24, Nested, doz.....1.30@1.40

Sinks—

Cast Iron—

Standard list.....60@60&10%
NOTE.—*There is not entire uniformity lists used by jobbers.*

Skeins Wagon—

Cast Iron.....75@75&10%
Steel.....40@40&10%

Slates, School—

Factory Shipments.
"D" Slates.....40&10%
Eureka, Unexcelled Noiseless..60& 5 tens
Victor A, Noiseless.....60&4 tens&5%

Slaw Cutters—See *Cutters.*

Snaps, Harness—

German.....40@40&10%
Covert Mfg. Co.:
Derby.....20&5&2%
High Grade.....45%
Jockey.....30&10%
Trojan.....45%
Yankee.....30&5&2%
Yankee, Roller.....30&5&2%
Covert's Saddlery Works:
Crown.....60%
German.....60%
Model.....60%
Triumph.....60%
Oneida Community Solid Swivel.....60%
Sargent's Patent Guarded.....60%&10%

Snaths—

Scythe.....45%

Snips, Tinners'—See *Shears.*

Spoons and Forks—Silver Plated—

Good Quality.....50&10@60&5%
Cheap.....50@60&10%
International Silver Co.
1847 Rogers Bros. and Rogers & Hamilton.....40&10%
Rogers & Bro., William Rogers Eagle Brand.....50&10%
Anchor, Rogers Brand.....60%
Wm. Rogers & Son.....60&10%

Miscellaneous—

German Silver.....60@60&5%
Cattaraugus Cutlery Co.:
Seneca Silver.....50%

Tinned Iron—

Teas.....per gro. 45@50c
Tables.....per gro. 90c@$1.00

Springs—Door—

Chicago (Coil).....40&10%
Gem (Coil).....30%
Pullman (Coil).....20%
Reliance (Coil).....40&10%
Star (Coil).....30%
Torrer's Rod, 39 in.....₱ doz. $1.10
Victor (Coil).....50&10&10%

Carriage, Wagon, &c.

1¼ in. and Wider:	*Per. Lb.*
Black.....	*4¼c*
Half Bright.....	*4¼c*
Bright.....	*4¾c*

Painted Seat Springs:
1½ x 2 x 26, per pr.....42c
1½ x 3 x 28 per pr.....70c

Sprinklers, Lawn—

Enterprise.....25@30%
Philadelphia No. 1, ₱ doz. $12; No. 2, $15; No. 3, $24.....30%

Squares—

Nickel plated.... } *Last Jan. 5, 1900.*
Steel and Iron... } *70&10@75&10%*
Rosewood Hdl Try Square and T-Bevels.....60&10&10@70%
Iron Hdl. Try Squares and T-Bevels, 40&10@40&10&10%
Disston's Try Sq. and T-Bevels.....70%
Winterbottom's Try and Miter.....40&10@40&10&10%

Squeezers—Lemon—

Wood, Common, gro., No. 0, $5.25 @$5.50: No. 1, $6.25@$6.50.
Wood, Porcelain Lined.
Cheap.....doz. $1.00
Good Grade.....doz. $1.25
Tinned Iron.....doz. $0.75@1.25
Iron, Porcelain Lined.....doz. $1.75

Staples—

Barbed Blind.....lb. 6@6¼c
Electricians', Association list.....80&10&10&10%
Fence Staples, Plain $2.25; Galvanized.....$2.55
Poultry Netting, Staples....per lb.. 3¼@3½c
Grand Crossing Tack Co.'s list....80&10%

Steels, Butchers'—

Dick's.....30%
Foster Bros'.....30%
C. & A. Hoffmann's.....40%

Steelyards.....30@30&10%

Stocks and Dies—

Blacksmiths'.....50@50&10%
Curtis Reversible Ratchet Die Stock..25%
Derby Screw Plates.....25%
Gardner Die Stocks No. 1.....50%
Gardner Die Stocks, larger sizes.....40%
Green River.....25%
Lightning Screw Plate.....25%
Little Giant.....25%
Reece's New Screw Plates.....25%

Stone—

Scythe Stones—

Chicago Wheel & Mfg. Co:
Gem Corundum, 10 inch, $8.00 per gro., 12 inch, $10.80
Norton Emery Scythe Stones:
Less than gross lots.....₱ gro. $9.00
One gross or more.....₱ gro. $7.20
Lots of 10 gross or more....₱ gro $6.00
Pike Mfg. Co. 1901 list:
Black Diamond S. S....₱ gro. $12.00
Lamoille S. S.....₱ gro. $11.00
White Mountain S. S....₱ gro. $9.00
Green Mountain S. S....₱ gro. $6.00
Extra Indian Pond S. S.₱ gro. $7.50
No. 1 Indian Pond S. S..₱ gro. $7.00
No. 2 Indian Pond S. S..₱ gro. $4.50
Leader Red End S. S....₱ gro $4.50
Emery and Corundum, 10 inch..₱ gro.....$9.00
Pure Corundum, 10 inch. ₱ gro $12
Crescent.....$7.00
Emery Scythe Rifles, Two Coat $8
Emery Scythe Rifles, Three Coat, $10
Emery Scythe Rifles Four Coat, $12
Balance of 1904 list 33⅓%

Oil Stones, &c.

Chicago Wheel & Mfg. Co., 1901 list:
Gem Corundum Oil, Double Grit....50%
Gem Corundum Axe, Single or Double Grit.....55%
Gem Corundum Slips.....55%
Gem Corundum Razor Hones.....50%
Pike Mfg. Co. 1901 list:

	₱ lb.
Arkansas Stone, No. 1, 3 to 5½ in.	$2.00
Arkansas Stone, No. 1, 5½ to 8 in.	$3.50
Arkansas Slips N. 1....	$4.00
Lily White Washita 4 to 8 i....	60¢
Rosy Red Washita, 4 to 8 in....	60¢
Washita Stone, Extra, 4 to 8 in..	50¢
Washita Stone, No. 1..4 to 8 in..	40¢
Washita Stone, No. 2. 4 to 8 in..	30¢
Lily White Slips.....90¢	
Rosy Red Slips.....90¢	
Washita Slips, Extra.....80¢	
Washita Slips, No. 1.....70¢	
Washita Slip, No 2.....40¢	

India Oil Stones (entire list).....33⅓%
Quickcut Emery and Corundum Oil Stone, Double Grit.....33⅓%
Quickcut Emery and Corundum Axe Stone, Single or Double Grit...33⅓%
Quickcut Emery Rubbing Bricks.33⅓%
Hindostan No. 1, Regular.....₱ lb 8¢
Hindostan No. 1 Small.....₱ lb 10¢
Axe stones (all kinds).....
Turkey Oil Stones, ex. 5 to 8 in. ₱ lb 80¢
Queer Creek Stones, 4 to 8 in.....20¢
Queer Creek Slips.....40¢
Sand Stone.....6¢
Belgian, German and Swaty Razor Hones.....50%
Natural Grit Carving Knife Hones, ₱ doz.....$3.00
Quick Edge Pocket Knife Hones, ₱ doz.....$2.50
Mounted Kitchen Sand Stone, ₱ doz.....$1.50

Stoners—Cherry—

Enterprise.....25@30%

Stoppers, Bottle—

Victor Bottle Stoppers.....₱ gro. $9.00

Stops, Bench—

Millers Falls.....15&10%
Morrill's...₱ doz., No. 1, $10.00.....50%
Morrill's, No. 2, $12.50.....50%

Door—

Chapin-Stephens Co.....60@60&10%

Plane—

Chapin-Stephens Co.....20%

Straps—Box—

Carr's Universal, case iots....20&10&10%

Hame—

Covert's Saddlery Works.....60&10%

Stretchers, Carpet—

Cast Iron, Steel Points....doz. 55@60c
Socket.....doz. $1.75
Excelsior Stretcher and Tack Hammer Combined, per doz, $6.....30%

Stuffers, Sausage—

Enterprise Mfg. Co.....25@25&7½%
National Specialty Mfg. Co., list Jan. 1, 1902.....30&5%

Sweepers, Carpet—

National Sweeper Co.:	Per doz.
Auditorium, Roller Bearing (35 in case), Nickel	$54.00
Mammoth, Roller Bearing (30 in case), Nickel	$60.00
Marion, Roller Bearing, regular finishes, full Nickel	$24.00
Marion Queen, Roller Bearing, full Nickel	$24.00
Monarch, Roller Bearing, Nickel	$22.00
Monarch, Roller Bearing, Jap'ned	$20.00
Transparent, Roller Bearing, Plate Glass Top, Nickel	$36.00
Monarch Extra, Roller Bearing, (17-inch case), Nickel	$36.00
Monarch Extra, Roller Bearing (17-inch case), Japanned	$33.00
National Queen, Fancy Veneers	$27.00
Perpetual, Regular Bearings, Nkl.	$20.00
Perpetual, Regular Bearings, Jap.	$18.00

NOTE.—*Rebates: 30c per dozen on three-dozen lots; $1 per dozen on five-dozen lots; $2 per dozen on ten-dozen lots; $2.50 per dozen on twenty-five-dozen lots.*

Tacks, Brads, &c.—

List Jan. 15, '99.
Carpet Tacks.....90&5&10@...%
American Cut Tacks...90&25@...%
Swedes Cut Tacks. 90&20&10&5@...%
Swedes Upholsterers' Tacks.....90&5&10&5@...%
Gimp Tacks.....90&45&10@...%
Lace Tacks.....90&45&10@...%
Trimmers' Tacks..90&30&10&5@...%
Looking Glass Tacks 70&10&5@...%
Bill Posters' and Railroad Tacks... 90&45&10...%
Hungarian Nails....80&30&5@...%
Common and Patent Brads.....80&10&5@...%
Trunk and Clout Nails..80&10@...%
NOTE.—*The above prices are for Straight Weights.* An extra 5% is given Star Weights** and an extra 10&5% on Standard Weights.****

Miscellaneous—

Double Pointed Tacks 90 & 6 or 7 tens
Steel Wire Brads, R. & E. Mfg. Co's list.. 50&10@60%

See also *Nails, Wire.*

Tanks, Oil—

	Each.
Emerald, S. S. & Co.....30-gal	$3.40
Emerald, S. S. & Co.....60-gal.	$4.25
Queen City S. S. & Co., 30-gal.	$3.65
Queen City S. S. & Co., 60-gal.	$4.50

Tapes, Measuring—

American Asses' Skin.....40&10@50%
Patent Leather.....25@30&5%
Steel.....40@40&10%
Chesterman's.....25@25&5%
Eddy Asses' Skin.....40&10@50%
Eddy Patent Leather.....25&30&5%
Eddy Steel.....40&40&10%
Keuffel & Esser Co., Steel and Metallic, Lower list, 1903.....35%
Lufkin's Steel.....33⅓&5%
Lufkin's Metallic.....30&30&5%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ⅝ inch and larger, per 100 lbs...$3.00

Thermometers—

Tin Case.....80&10@80&10&5%

Ties, Bale—Steel Wire.

Single Loop.....80&2½
Monitor, Cross Head, Etc.....70%

Brick Ties—

Niagara Brick Ties.....25&10%

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tips, Safety Pole—

Covert's Saddlery Works.....60&10%

Tire Benders, Upsetters, &c.—See *Benders and Upsetters, Tire.*

Tools—Coopers'—
L. & I. J. White ..... 30@30&5%

Hay—
Myers' Hay Tools 50%
Stowell's Hay Carriers 50%
Stowell's Hay Forks 50%
Stowell's Fork Pulleys 50%

Saw—
Atkins' Cross Cut Saw Tools 40%
Simonds' Improved 33⅓%
Simonds' Crescent 25%

Ship—
L. & I. J. White 25%

Transom Lifters—
See *Lifters, Transom.*

Traps—Fly—
Balloon, Globe or Acme ..... doz. $1.15@1.25; gro. $11.50@12.00
Harper, Champion or Paragon ..... doz. $1.25@1.40; gro. $13.00@13.50

Game—
Oneida Pattern ..... 75&10@75&10&5%
Newnouse ..... 45@45&5%
Hawley & Norton ..... 65@65&5%
Victor (Oneida Pattern) ..... 75@75&5%
O.C Jump (Blake Pattern) 60&5@60&10%

Mouse and Rat—
Mouse, Wood, Choker, doz. holes ..... 8½@9c
Mouse, Round or Square Wire ..... doz. 85@90c
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat, Each $1.12½; ₱ doz. $12.00
No. 3, Rat, ₱ doz. $6.00; case of 50 $5.25 doz.
No. 3½, Rat, ₱ doz. $4.75; case of 72 $4.25 doz.
No. 4, Mouse, ₱ doz. $3.50; case of 7 $2.75 doz.
No. 5, Mouse, ₱ doz. $2.75; case of 150 $2.25

Trimmers, Spoke—
Wood's E I 50%

Trowels—
Disston Brick and Pointing 30%
Disston Plastering 25%
Disston "Standard Brand" and Garden Trowels 35%
Kohler's Steel Garden Trowels, 5 in. ..... ₱ gro. $1.80
Kohler's Steel Garden Trowels, 6 in ..... ₱ gro. $6.00
Never-Break Steel Garden Trowels ..... gro. $6.00
Rose Brick and Plastering ..... 25&5%
Woodrough & McParlin, Plastering 25%

Trucks, Warehouse, &c.—
B. & L. Block Co.:
New York Pattern ..... 50&10%
Western Pattern ..... 60&10%
Handy Trucks ..... per doz. $16.00
Grocery ..... per doz. $15.00
Daisy Stove Trucks, Improved pattern ₱ doz. $18.50
Model Stove Trucks ..... ₱ doz. $18.50

Tubs, Wash—

No.	1	2	3
Galvanized, per doz.	$4.75	5 25	6.00

Galvanized Wash Tubs (S. S. & Co.):

No.	1	2	3	10	20	30
Per doz, net.	$5.70	6.50	7.20	6.30	7 20	8.10

Twine—Miscellaneous—

Flax Twine—	*BC*	*B.*
No. 9, ¼ and ½-lb. Balls	*22c@24c*	
No. 12, ¼ and ½ lb. balls	*18c@20c*	
No. 18, ¼ and ½-lb. Balls	*16c@18c*	
No. 24, ¼ and ½-lb. Balls	*16c@18c*	
No. 36, ¼ and ½-lb. Balls	*15c@17c*	

Chalk Line, Cotton, ½-lb Balls 30c
Cotton Mops, 6, 9, 12 and 15 lb. to doz ..... 9@11c
Cotton Wrapping 5 Balls to lb ... according to quality ..... 18½c@20c
American 3-Ply Hemp, ¼ and ½-lb. Balls ..... 13@14c
American 3 Ply Hemp, 1-lb. Balls .. 13@14c
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine) 8c
India 3-Ply Hemp, 1-lb. Balls ... 7@9c
India 3-Ply Hemp, 1¼-lb. Balls, 6@7c
2, 3, 4 and 5-Ply Jute, ½-lb. Balls ... 9@10c
Mason Line, Linen, ¼-lb. Balls ... 16c
No. 264 Mattress, ¼ and ½-lb Balls 37c
Wool, 3 to 6 ply ..... 5¾@6c

Vises—
Solid Box ..... 50&10@60%

Parallel—
Athol Machine Co:
Simpson's Adjustable 40%
Standard 40%
Amateur 25%
Columbian Hdw Co 40%
Emmert Universal:
Pattern Makers' No. 1, $15.00; No. 2, $12.50; No. 3, $10.00.
Machinist and Tool Makers' No. 4 $12.50; No. 5, $7.00; No. 6, $10.00; No. 10, $21.50.
Jewelers' No. 7 ..... $4.00
Fisher & Norris Double Screw ... 15&10%
Hollands':
Machinists' ..... 40@40&5%
Keystone ..... 65&5@70%
Lewis Tool Co ..... 20@30%
Merrill's 30%
Miller's Falls ..... 60&10%
Massey Vise Co.:
Clincher 40%
Perfect 30%
Lightning Grip 30%
Parker's:
Victor ..... 20@25%
Regulars ..... 20@25%
Vulcan's ..... 40@45%
Combination Pipe ..... 55@60%
Prentiss ..... 20@25%
Sargent's 40%
Smith & Hemenway Co.:
Machinists 40%
Jewelers 33⅓%
Snediker's X. L. 33⅓%
Stephens' 33⅓%

Saw Filers'—
Disston's D 3 Clamp and Guide, ₱ doz. $30 ..... 25%
Perfection Saw Clamps, ₱ doz. $5 00
Reading 60%
Wentworth's Rubber Jaw, Nos. 1 2 and 3 ..... 45&50%

Wood Workers'—
Massey Vise Co.:
Lightning Grip 15%
Perfect 15%
Wyman & Gordon's Quick Action, 6 in., $6.00; 9 in., $7.00; 14 in., $8.00.

Miscellaneous—
Bignall & Keeler Combination Pipe Vise ..... 60&10%
Hollands' Combination Pipe ..... 60@60&5%
Massey's Quick Action Pipe 40%
Parker's Combination Pipe:
87 Series 60%
187 Series ..... 60&5%
No. 870 ..... 40%

Wads—Price Per M.

B. E., 11 up	*.60c*
B. E., 9 and 10	*.70c*
B. E., 8	*.80c*
B. E., 7	*.80c*
P. E., 11 up	*$1.00*
P. E., 9 and 10	*1.25*
P. E., 8	*1.50*
P. E., 7	*1.50*
Ely's B. E., 11 and larger	*$1.70@1.75*
Ely's P. E., 12 to 20	*$3 00@3.25*

Dis. 15%

Ware, Hollow—
Cast Iron, Hollow—
Stove Hollow Ware:
Enameled ..... 55&10@60%
Ground ..... 60&10@65%
Plain or Unground ..... 65&10@70%
Country Hollowware per 100 lbs., $2 50
White Enameled Ware:
Maslin Kettles 70%
Covered Ware:
Tinned and Turned 40%
Enameled 50%
See also *Pots Glue.*

Enameled—
Agate Nickel Steel Ware ..... 50&20
Agate Nickel Steel Ware, Specials ..... 60&15%
Iron Clad Ware ..... 70&10%
Lava, Enameled ..... 40&10%
Never Break Enameled 50%

Tea Kettles—
Galvanized Tea Kettles:

Inch	6	7	8	9
Each	*45c*	*50c*	*55c*	*65c*

Steel Hollow Ware.
Avery Spiders & Griddles ..... 65@65&5%
Avery Kettles 60%
Porcelained ..... 50&5@50&10%
Never Break Spiders and Griddles ..... 65&5%
Never Break Kettles 60%
Solid Steel Spiders & Griddles ..... 65&5%
Solid Steel Kettles 60%

Warmers, Foot—
Pike Mfg. Co., Soapstone ..... 40@40&10%

Washboards—
Solid Zinc: ₱ doz
Crescent, family size, bent frame. $3.00
Red Star, family size, stationary protector $3.00
Double Zinc Surface:
Saginaw Globe, family size, stationary protector $2.65
Cable Cross, family size, stationary protector $2.90
Single Zinc Surface:
Naiad, family size, open back perforated $2.40
Saginaw Globe, protector, family size, ventilated back $2.25
Brass Surface:
Brass King, Single Surface, open back $3.00
Nickel Plate Surface:
No. 1001 Nickel Plate, Single Surface $3.00
Glass Surface:
Glass King, Single Surface, open back, $3
Enamel Surface:
Enamel King, Single Surface, ventilated back $3.00

Washers—Leather, Axle—
Solid ..... 80c&10@80c&10c&10%
Patent ..... 90@90c&5%
Coil: ⅛ 1 1¼ 1¾ *Inch.*
11c 12c 18c 14c per box

Iron or Steel—
Size bolt .... 5-16 ⅜ ½ ⅝ ¾
Washers $5.00 4.10 2.80 2.60 2.40
In lots less than one keg add ½c per lb., 5-lb. boxes add ½c to list.

Cast Washers—
Over ½ inch, barrel lots, per lb 1¾@2c

Wedges—
Oil Finish ..... lb. 2.25@2.30c

Weights—
Hitching—
Covert Mfg. Co ..... 40&2%
Covert's Saddlery Works ..... 60&10%

Sash—
Per ton, f.o.b. factory:
Eastern District $23.00
Western, Central and Southern Districts market unsettled, prices ranging from $17.50@19.00

Wheels, Well—
8-in.. $1.60@1.80; 10-in., $2.00@2.25; 12-in., $2.45@2.65; 14-in., $4.00@4.25

Wire and Wire Goods—
Bright and Annealed:
6 to 9 ..... 80c&5@80c&7½%
10 to 18 ..... 80@80c&5%
19 to 26 ..... 80c&10@90c&10c&5%
27 to 36 ..... 90c&5@80c&10%
Galvanized:
6 to 9 ..... 77½@77½c&5%
10 to 14 ..... 72½@72½c&5%
15 to 16 ..... 75c&7½@76c&10c&2½%
19 to 26 ..... 75c&5@75c&10%
27 to 36 ..... 72½c&5@72c&7½%
Coppered:
6 to 9 ..... 77½@77½c&5%
10 to 14 ..... 72½@72½c&5%
15 to 18 ..... 75c&10@75c&10c&2½%
19 to 26 ..... 75c&10c&5@80%
27 to 36 ..... 75@75c&5%
Tinned:
6 to 14 ..... 77½@77½c&7½%
15 to 18 ..... 75c&5@75c&10%
Annealed, Steel and Tinned, on Spools ..... 75c&10@75c&10c&5%
Brass & Copper on Spools ..... 60c&5@60c&10c&5%
Brass, list Feb. 26, '96 ..... 30%
Copper, list Feb. 26, '98 ..... 15%
Cast Steel Wire 50%
Wire Clothes Line, see *Lines.*
Wire Picture Cord, see *Cord.*

Bright Wire Goods—
List June 24, 1903.. 90c&10@90c&10c&10%

Wire Cloth and Netting—
Galvanized Wire Netting ..... 80c&10@80c&10c&5%
Painted Screen Cloth, per 100 ft. $1.25
Standard Galv. Hardware Grade:
Nos. 2, 2½ and 3 Mesh, sq. ft. 3c
Nos. 4 and 5 Mesh, sq. ft. 3½c
No. 6 Mesh, sq ft 3½c
No. 8 Mesh, sq ft 4c

Wire Barb—See *Trade Report.*

Wrenches—
Agricultural ..... 75c&10@75c&10c&5%
Alligator 70%
Baxter Pat'rn S Wrenches ..... 70c&5@70c&10%
Drop Forged S ..... 45@45c&5%
Acme ..... 60&10%
Alligator Pattern 70%
Bull Dog 70%
Bemis & Call's:
Adjustable S 40%
Adjustable S Pipe 40%
Bemis Pipe 60%
Brigg's Pattern 40%
Combination Black ..... 40&5%
Combination Bright 40%
Merrick's Pattern 50%
Boardman's 33⅓%
Coes' Genuine Knife Hdl ..... 40&10&5%
Coes' Genuine Steel Hdl ..... 40&10&5&5%
Coes' Genuine Key Model ..... 40&10&5&5%
Coes' "Mechanics' ..... 40&10&10&5&5%
Donohue's Engineer ..... 40&10%
Eagle ..... 50&10%
Elgin Wrenches 40%
Elgin Monkey Wrench Pipe Jaws 33⅓%
Gem Pocket 30%
Hercules 70%
W. & B. Machinist:
Case lots ..... 50&5%
Less than case lots 50%
Improved Pipe (W & B.) 60%
Solid Handles, P.S. & W ..... 50@50&5%
Stillson 65%
Vulcan Chain 50%

Wrought Goods—
Staples, Hooks, &c., list March 17 '92 ..... 90@90c&5%

Yokes Neck—
Covert Saddlery Works, Trimmed 70%
Covert Saddlery Works, Neck Yoke Centers 70%

Yokes, Ox, and Ox Bows—
Fort Madison's Farmers & Freighters' ..... list net

Zinc—
Sheet ..... per 100 lbs. $6 35@6 60

PAINTS, OILS AND COLORS.

White Lead, Zinc, &c.
Lead, English white, in Oil ..... 9¼@ 9¼
Lead, American White, in Oil:
Lots of 500 ℔ or over ..... @ 6½
Lots less than 500 ℔ ..... @ 7
In Barrels ..... @ 6
Lead, White, in oil, 25 ℔ tin pails, add to keg price ..... @ ¼
Lead, White, in oil, 12½ ℔ tin pails, add to keg price ..... @ 1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price ..... @ 1¼
Lead, American, Terms: For lots 12 tons and over ½¢ rebate; and 2% for cash if paid in 15 days from date of invoice; for lots of 500 lbs. and over 2% for cash if paid in 15 days from date of invoice; for lots of less than 500 lbs. net.
Lead White, Dry in bbls ..... @ 6
Zinc, American, dry ..... ₱ ℔ 4½@ 4¾
Zinc, French:
Paris, Red Seal, dry 7¼
Paris, Green Seal, dry 9¼
Antwerp Red Seal, dry 6½
Antwerp, Green seal, dry 8½
Zinc, V. M. French, in Poppy Oil, Green Seal:
Lots of 1 ton and over ..... 11¼@11¾
Lots of less than 1 ton ..... 11½@12
Zinc, V. M French, in Poppy Oil, Red Seal:
Lots of 1 ton and over ..... 10 @10½
Lots of less than 1 ton ..... 10¼@10¾

DISCOUNTS.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or mixed grades, 1%; 25 bbls., 2%; 50 bbls., 4%.

Dry Colors.
Black, Carbon ..... ₱ ℔ 5 @10
Black, Drop, Amer ..... 4 @ 6
Black, Drop, Eng ..... 5 @15
Black, Ivory ..... 16 @20
Lamp, Com ..... 4½@ 6
Blue, Celestial ..... ₱ ℔ 4 @ 6
Blue, Chinese ..... 29 @ 32
Blue, Prussian ..... 27 @30
Blue, Ultramarine ..... 4½@15
Brown, Spanish ..... ½@ 1
Carmine, No. 40 ..... ₱ ℔ $3.60@4.00
Green, Chrome, ordinary ..... 3½@ 6
Green, Chrome, pure ..... 17 @25
Lead, Red, bbls. ½ bbls. and kegs:
Lots 500 ℔ or over ..... @ 6½
Lots less than 500 ℔ ..... @ 7
Litharge, bbls. ½ bbls. and kegs:
Lots 500 ℔ or over ..... @ 6½
Lots less than 500 ℔ ..... @ 7
Ocher, American ..... ₱ ton $8.50@16.00
Orcher, American Golden ..... 2½ @ 3½
Orcher, French ..... 1½ @ 2½
Orcher, Foreign Golden ..... 2½@ 3½
Orange Mineral, English ..... ₱ ℔ 8½@10½
Orange Mineral, French ..... 10½@11½
Orange Mineral, German ..... 7 @10
Orange Mineral, American ..... 8 @ 8½
Red, Indian, English ..... 4½@ 8½
Red, Indian, American ..... 3 @ 3½
Red, Turkey, English ..... 4 @ 6
Red, Tuscan, English ..... 7 @10
Red, Venetian, Amer.. ₱ 100 ℔. $0.50@1.25
Red Venetian, English. ₱ 100 ℔. 1.15@1 75
Sienna, Italian, Burnt and Powdered ..... ₱ ℔ 3 @ 9½
Sienna, Ital., Raw, Powd ..... 3 @ 6½
Sienna, American, Raw ..... 1½@ 2
Sienna, American, Burnt and Powdered ..... ₱ ℔ 1½@ 2
Talc, French ..... ₱ ℔ 1 @ 1½
Talc, American ..... 75 @1.25
Terra Alba, French, ₱ 100 ℔ .90 @1.00
Terra Alba, English ..... .90 @1.00
Terra Alba, American No. 1 ..... 60 @70
Terra Alba, American No. 2 ..... 45 @50
Umber, Turkey, Bnt. & Pow. ₱ ℔ 2½@ 3½
Umber, Turkey, Raw & Powd. 2½@ 3½
Umber, Bnt. Amer ..... 1½@ 2
Umber, Raw, Amer ..... 1½@ 2
Yellow, Chrome ..... 11 @14
Vermilion, American Lead ..... 10 @25
Vermilion, Quicksilver, bulk .. @65
Vermilion, Quicksilver, bags ..... @66
Vermilion, English, Import .. 75 @80
Vermilion, Chinese ..... .90@1.00

Colors in Oil.
Black, Lampblack ..... 12 @14
Blue, Chinese ..... 36 @46
Blue, Prussian ..... 32 @36
Blue, Ultramarine ..... 13 @16
Brown, Vandyke ..... 11 @14
Green, Chrome ..... 10 @15
Green, Paris ..... @24
Sienna, Raw ..... 12 @15
Sienna, Burnt ..... 12 @15
Umber, Raw ..... 11 @14
Umber, Burnt ..... 11 @14

Miscellaneous.
Barytes, White Foreign, ₱ ton $17.50@20.00
Barytes Amer. floated ..... 18.50@20.00
Barytes, Crude No. 1 ..... 10.00@11.00
Chalk, in bulk ..... ₱ ton 3.00@ 3.25
Chalk, in bbls ..... @ 35
China Clay, English .. ₱ ton 11.00@17.00
Cobalt, Oxide ..... ₱ 100 ℔ 2.50@ ...
Whiting, Common. ₱ 100 ℔ .45@ .48
Whiting, Gilders ..... .55@ .57
Whiting, extra Gilders' .... .58@ .60

Putty.
In bladders ..... 1¾@2¼
In bulk ..... 1¼@2
In cans 1 ℔ to 5 ℔ ..... 2½@4¼
In cans 12 ½ ℔ to 25 ℔ ..... 1½@2¼

Spirits Turpentine.
In Oil bbls ..... 56 @56½¢
In machine bbls ..... 56½@57 ¢

Glue.
Cabinet ..... ₱ ℔ 11 @15
Common Bone ..... 6 @ 8
Extra White ..... 18 @24
Foot Stock, White ..... 11 @14
Foot Stock, Brown ..... 7 @10
German Hides ..... 12 @18
French ..... 10 @40
Irish ..... 13 @16
Low Grade ..... 8 @11
Medium White ..... 14 @17

Gum Shellac— Cts. per lb.
Bleached, Commercial ..... 45 @..
Bone Dried ..... 56 @..
Button ..... 65 @60
Diamond I ..... 60 @..
Fine Orange ..... 52 @54
A. C. Garnet ..... 46½@..
D. C ..... 85 @..
Octagon B ..... 56 @..
T. N ..... 48 @50
V. S. O ..... 60 @..

Animal, Fish and Vegetable Oils.
Linseed, City, raw ..... ₱ gal. 45 @46
Linseed, City, boiled ..... 47 @48
Linseed, State and West'n, raw 43 @44
Linseed, raw Calcutta seed ..... @65
Lard, Prime Winter ..... 56 @58
Lard, Extra No. 1 ..... 49 @51
Lard, No. 2 ..... 86 @38
Cotton-seed, Crude, f.o.b mills. 22 @23
Cotton-seed, Summer Yellow, prime ..... 29 @29¼
Cotton-seed Summer Yellow, off grades ..... @ ..
Sperm, Crude ..... @55
Sperm, Natural Spring ..... 56 @57
Sperm, Bleached Spring ..... 59 @60
Sperm, Natural Winter ..... 57 @58
Sperm, Bleached Winter ..... 60 @61
Tallow, Prime ..... 48 @49
Whale, Crude ..... @ ..
Whale, Natural Winter ..... 44 @45
Whale Bleached Winter ..... 46 @47
Menhaden, Brown, Strained .. 29 @30
Menhaden, Light Strained .... 30 @31
Menhaden, Bleached Winter .. 32 @33
Menhaden, Ex Bleached Winter 34 @35
Menhaden, Southern ..... @ ..
Cocoanut, Ceylon ..... 6½@ 7
Cocoanut, Cochin ..... 7½@ 7¾
Cod, Domestic ..... 33 @34
Cod, Newfoundland ..... 37 @ ..
Red Elaine ..... 30 @32
Red Saponified ..... ₱ ℔ 4¾@4¾
Olive, Italian, bbls ..... 51 @ 53
Neatsfoot prime ..... 50 @ 51
Palm, prime, Lagos ..... ₱ ℔ 5¾@ 6

Mineral Oils.
Black, 30 gravity, 25&30 cold test ..... ₱ gal. 11 @12
Black, 29 gravity, 15 cold test. 12 @13
Black, Summer ..... 11 @12
Cylinder, light filtered ..... 18½@19½
Cylinder, dark filtered ..... 14½@17½
Paraffine, 903-907 gravity ..... 13 @13½
Paraffine, 903 gravity ..... 12 @12¾
Paraffine, 888 gravity ..... 9¾@10
Paraffine, red, In small lots ½¢ advance. 12 @13½

For the Table of "Current Metal Prices" see the First Issue of Every Month.